IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
FORT WORTH DIVISION

BIG WILL ENTERPRISES, INC., **Plaintiff,** **v.** **SOLERA HOLDINGS, INC.,** **Defendant.**	**Civil Action No.: 4:23-cv-00257** **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Big Will Enterprises Inc. ("BWE" or the "Plaintiff") in British Columbia, by and through their undersigned attorneys, files this original Complaint against Solera means United Services Automobile Association and its Operating Companies, ("Solera" or "Defendant") and alleges, based on its own knowledge with respect to itself and its own actions and based on information and belief as to all other matters, as follows:

INTRODUCTION

1.

This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code to enjoin infringement and obtain damages from Defendant's unauthorized manufacture, use, sale, offer to sell, and/or importation into the United States for the subsequent use or sale of products or methods that infringe one or more claims of United States Patents: 10,521,846; 9,049,558; 8,977,230; 8,737,951; 8,559,914; and 8,452,273.

2.

BWE is an innovative company in the field of sensor technology for determining human activities for health, safety and other uses. BWE's sensor-based technologies go beyond

determining simple human locations and offer smartphone users (and other communication-based devices) a personal surveillance system based on their activities. The technologies monitor sensors such as the accelerometer, the gyroscope and others for uniquely identifying human activities; the motion activities can include, for example, but not limited to, standing/stationary, walking, running, driving, skiing, sleeping, snoring, hiking, skateboarding, sky diving, bicycling, unicycling, golfing, falling down, swimming, riding a ski lift, a motor vehicle, a motorcycle, an airplane, a train, or a water vessel, accelerating or decelerating in a motor vehicle, motorcycle, train, airplane, or water vessel, vibrating, propagating through a medium, rotating, riding in a wheelchair, and other human movements, where capturing data and/or providing feedback is desired. BWE has created proprietary technologies in this field of technology since at least 2007 for, among other benefits, the increased health, safety, and wellbeing of its users. BWE's patented technology was developed for use on a wide variety of devices, including smartphones, smartwatches, and other communication and sensor-based devices in use on many popular products in the market today. In addition to licensing, BWE has incorporated its patented technology in its own test platforms for determining human activities, motions within activities, accidents and falls, among others.

3.

A primary inventive concept is method by which a particular human movement can be identified, when the sensors, in this case, those in a mobile phone, have no fixed orientation with respect to the human. A smart phone may be ina user's pocket, purse or backpack, for example and in no particular orientation. U.S. 8,452,273 cols. 1-3. Prior to the '273 Patent, there was no effective answer for this problem. BWE's sensor monitoring, processing and communication

technology is covered by the claims of the ’846, ’558, ’230, ’951, ’914, and the ’273 Patents asserted in this action, as well as other BWE patents.

JURISDICTION AND VENUE

4.

BWE is a British Columbia company, incorporated in Canada having its principal place of business at 4573 West 1st Avenue, Vancouver, British Columbia V6R 1H7, Canada.

5.

Upon information and belief, Solera Holdings Inc is a Corporation organized under the laws of Delaware, whose corporate office is located at 1500 Solana Blvd Building 6, Suite 6300, Westlake, TX 76262.

6.

Upon information and belief, Defendant may be served this Complaint by service upon its registered agent Corporation Service Company, 211 E. 7th Street, Suite 620, Austin, TX 78701

7.

This is an action for infringement of a United States patent arising under 35 U.S.C. §§ 271, 281, and 284-285, among others. This Court has subject matter jurisdiction over all causes of action set forth herein pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq.*

8.

Venue is proper in this judicial district and division pursuant to 28 U.S.C. §§1391(b) and (c) and 1400(b) in that, upon information and belief, Defendant operates a large corporate office located at 1500 Solana Blvd Building 6, Suite 6300, Westlake, TX 76262. Defendant routinely does business within this district, Defendant has committed acts of infringement within this district, and Defendant continues to commit acts of infringement within this district.

9.

On information and belief, Solera's products and services are offered for sale and sold to customers residing in this State and District. Defendant also provides an online presence under the name Solera.com which is available to customers and prospective customers within this State and District. As a result of Defendant's business activities in this State and District, on information and belief, Defendant has had continuous and systematic contacts with this State and District, including sales to customers residing in this State and District.

10.

Upon information and belief, Defendant is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to Defendant's substantial business in this State and judicial district, including: (i) at least a portion of the infringements alleged herein; and/or (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Texas and in this district.

ALLEGATIONS COMMON TO ALL COUNTS

11.

Plaintiff ("BWE") owns all right, title, interest in, and has standing to sue for infringement the following patents: United States Patent No. 10,521,846 ("the '846 Patent"), entitled "Targeted advertisement selection for a wireless communication device (WCD)," issued on December 31, 2019; United States Patent No. 9,049,558 ("the '558 Patent"), entitled "Systems and methods for determining mobile thing motion activity (MTMA) using sensor data of wireless communication device (WCD) and initiating activity-based actions," issued on June 02, 2015; United States Patent No. 8,977,230 ("the '230 Patent"), entitled "Interactive personal surveillance and security (IPSS) systems and methods," issued on March 10, 2015; United States Patent No. 8,737,951 ("the '951

Patent”), entitled “Interactive personal surveillance and security (IPSS) systems and methods,” issued on May 27, 2014; United States Patent No. 8,559,914 (“the ’914 Patent”) entitled “Interactive personal surveillance and security (IPSS) systems and methods,” issued on October 15, 2013; and United States Patent No. 8,452,273 (“the ’273 Patent”), entitled “Systems and methods for determining mobile thing motion activity (MTMA) using accelerometer of wireless communication device,” issued May 28, 2013. Copies of the ’846 Patent, the ’558 Patent, the ’230 Patent, the ’951 Patent, the ’914 Patent and the ’273 Patent are attached as Exhibits 1-6.

12.

BWE is a global leader and innovator in the field of sensor technology for determining human activities for health, safety and other uses. These proprietary technologies and innovations were being developed since 2007 for the increased health, safety and wellbeing of its users. BWE patented technology was developed for use on a wide variety of devices, including smartphones and wearables and are in use on many popular products in the market today. In addition to licensing, BWE has incorporated its patented technology in its own test platforms for determining human activities, motions within activities, accidents and falls, among others.

13.

BWE’s sensor based technologies go beyond determining human locations by uniquely identifying human activities for automatically monitoring and tracking movements, such as sleep, stationary, walking, running, cycling, falling down, rotating and other human movements where capturing data and/or providing feedback is desired.

14.

BWE's sensor monitoring, processing and communication technologies are covered by the claims of the '846 Patent, '558 Patent, the '230 Patent, the '951 Patent, the '914 Patent and the '273 Patents which are asserted in this action,. as well as other BWE patents.

15.

Defendant is in the business of engineering, designing, supplying, marketing, advertising, and selling consumer products and monitoring services.

COUNT I

DIRECT INFRINGEMENT OF THE '846 PATENT

16.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

17.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the '846 Patent, through, among other activities, making, using, and incorporating into Defendant's Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant's Mentor applications are provided, at least in part, as a smartphone-deployed driver-behavior monitoring and reporting solution.

18.

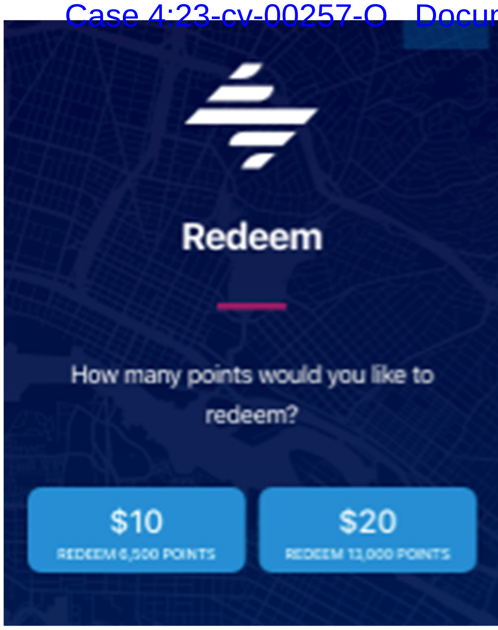
Independent Claim 1 of the '846 Patent, shown in italics, recites:

> *1. A method for use in connection with a wireless communication device (WCD) transported by a mobile thing (MT), the WCD having a computer architecture that has access to a memory, comprising: determining a mobile thing motion activity (MTMA) associated with the MT that is transporting the WCD based at least in part upon sensor data, the sensor data derived from one or more sensors associated with the WCD,*

The Mentor system uses smartphones ("wireless communication devices") having accelerometers and gyroscopes for determining human motions and activities. Determination of such human activities may include phone usage or handling while driving as well as determination, aggressive or dangerous driving by detecting fast cornering such as quick sharp turns and others via monitoring acceleration ("accelerometer") sensor data and/or angular velocity ("gyroscope") sensor data over time periods from the internal smartphone sensor(s).

Mentor Behaviors - Collects & analyzes data for the most predictive driving behaviors using the smartphone's accelerometer and GPS sensor - Incorporates positive behaviors (smooth maneuvers), as well as risky maneuvers – Acceleration, Braking, Cornering, Distraction (Calls, Texting, Emailing, Handling), & Speeding. [embedded video at https://www.edriving.com/mentor/, *see also https://www.edriving.com/wp-content/themes/edriving/*images/pdf/NETS-eDRIVING-Ecolab-Presentation-new.pdf].

Claim 1 continues:



the one or more sensors measuring physical movement of the WCD in three dimensional space and producing data sets comprising three movement values and a time value, each of the three movement values indicative of physical movement of the WCD relative to a respective axis in a three dimensional (3D) coordinate system at the time value in order to permit statistical analysis of the physical movement;

Defendant's Mentor system uses smartphones ("wireless communication devices") equipped with accelerometers with 3 or more axis and/or gyroscopes with 3 or more axis sensors for monitoring three dimensional space(s) for representing the driver's movements (such as phone usage while driving, aggressive driving such as cornering and others). The data from the 3 axis accelerometer and/or gyroscope data is measured by using time values for statistical analysis for determining human motions and activities.

> …Receive a score after every trip with key insights about where you had to use the brake too hard, drove too fast, or used your phone. It's all measured using your phone's GPS, gyroscope and other internal sensors. [https://info.edriving.com/acton/media/43050/mentor-dragon].

Claim 1 continues:

> *selecting an advertisement based at least in part upon the determined MTMA; causing the advertisement to be communicated to the WCD; and*

The Mentor system determines the users estimated discount score by measuring the motion activities when the user is driving. The driving advertisements are designed to promote safe driving, and in-return Solera companies increase profits by reducing insurance claims/expenses. Driving discount advertisements are determined by monitoring the users smartphone sensors and determine when the user is engaged in safe and unsafe driving behaviors.

> Some of your positive behaviors will unlock Badges while others will unlock Badges as well as Rewards Points. Your Badges will be collected and displayed on the Rewards page. Your Rewards Points will accumulate

> on your Dashboard and can be redeemed for gift cards once enough Points are earned. … Some Badges, however, will carry Rewards Points that can be collected and redeemed for gift cards. This way, you will receive credit for every scored trip and will be rewarded for your safe driving. [https://www.edriving.com/mentor/].

Claim 1 continues:

> *wherein the determining the MTMA comprises: storing a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA;*

The process of comparing the reference data with live accelerometer and/or gyroscope data to reference motion activity creates signatures that include frequencies and/or timing.

> *determining a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system; using the normalizing mathematical relationship, determining normalized data sets; analyzing the normalized data sets in the frequency and time domains;*

Normalizing the live data into sets of data that may be measured in the frequency and time domains allows the live 3D (3 or more axis from the accelerometer and/or gyroscope) data to be compared to the reference data:

Claim 1 concludes:

> *determining likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and selecting a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

Based on a range of live data sets and how accurately these data sets match the motion activity referenced data, the human activity is at least in part determined based on the predetermined likelihoods that are set, the previous identified activity and the possible options within an activity.

19.

Claim 2 of the ’846 Patent, for example, recites:

> *2. The method of claim 1, wherein the advertisement is communicated to the WCD via an email or text message.*

On information and belief, Defendant provides Mentor weekly summary emails. Participants are automatically enrolled to receive weekly summary emails.

20.

Claim 3 of the ’846 Patent, for example, recites:

> *3. The method of claim 1, further comprising determining an identification (ID) of the MT and wherein the selecting the advertisement is further based at least in part upon the determined ID in addition to the determined MTMA.*

On information and belief, Defendant’s Mentor application receives advertisements promoting rewards for safe driving scores based on the unique ID of the smartphone. This allows the server to message directly to the application user based on updated advertisements.

21.

Claim 4 of the ’846 Patent, for example, recites:

> *4. The method of claim 1, further comprising determining a location of the WCD and wherein the selecting the advertisement is further based at least in part upon the location in addition to the determined MTMA.*

On information and belief, Defendant’s Mentor application determines a user’s location via the smartphone and provides advertisements when the user finishes an activity such as driving.

22.

Claim 5 of the ’846 Patent, for example, recites:

> *5. The method of claim 1, further comprising receiving a payment for or otherwise monetarily benefiting from causing the advertisement to be communicated.*

On information and belief, Mentor may provide driving discounts as advertisements and to promote safe driving, and in-return Solera customers increase profits by reducing insurance claims/expenses. The driving discount advertisements are determined by monitoring a user’s smartphone sensors and determine when the use is engaged in safe and unsafe driving behaviors.

23.

Claim 6 of the ’846 Patent, for example, recites:

> *6. The method of claim 1, wherein the causing comprises enabling an advertiser to communicate the advertisement to the WCD by advising a remote computer system associated with the advertiser of the MTMA.*

On information and belief, Solera uses the Mentor programs to send predefined advertisements from a remote computer system that may be configured from time to time.

24.

Claim 7 of the ’846 Patent, for example, recites:

> *7. The method of claim 1, further comprising enabling a user of the WCD to enable and disable the causing of the advertisement.*

On information and belief, Solera’s Mentor application allow users to choose if messages will be sent to email.

25.

Claim 8 of the ’846 Patent, for example, recites:

> *8. The method of claim 1, wherein the sensor data is derived from an accelerometer, a gyroscope, or both.*

As demonstrated, *supra* with respect to Claim 1, Solera’s Mentor uses sensor data from the accelerometer and the gyroscope.

26.

Claim 9 of the ’846 Patent, for example, recites:

> *9. The method of claim 1, wherein the steps are performed in the WCD itself or in one or more communicatively coupled computer systems that are remote from the WCD and that receive the sensor data from the WCD.*

On information and belief, Solera’s Mentor system and program uses the smartphone applications and sensors and also uses servers to make certain decisions that enhance the accuracy of smartphone data.

27.

Claim 10 of the '846 Patent, for example, recites:

> *10. The method of claim 1, wherein the WCD is communicatively coupled to a remote computer system and wherein the memory is associated with the remote computer system.*

On information and belief, Solera's Mentor system and program uses the smartphone applications and sensors and also uses servers to make certain decisions through cache memory.

28.

Claim 11 of the '846 Patent, for example, recites:

> *11. The method of claim 1, wherein the memory is local and situated within the WCD.*

On information and belief, Solera's Mentor smartphone application processes and uses memory for certain events and logging of data, that is separate from connecting to servers for all storage, computing and memory needs/requirements.

29.

Independent Claim 12 of the '846 Patent, shown in italics, recites:

> *12. A wireless communication device (WCD) transported by a mobile thing (MT), comprising: one or more transceivers designed to enable access to a remote computer system, the remote computer system designed to select a targeted advertisement and enable the advertisement to be communicated or accessed by the WCD;*

Defendant's Mentor services use applications on smartphones ("wireless communication devices") for determining human motions and activities. The smartphones equipped with Mentor applications use transceivers designed to send and receive from remotely located servers. On information and belief, the driving discount advertisements within the servers are communicated to and/or accessed by the smartphone applications. The Mentor application determines the users estimated discount score by measuring the motion activities when the user is driving. The driving

discount advertisements are designed to promote safe driving, and in-return Solera customers increase profits by reducing insurance claims/expenses. Driving discount advertisements are determined by monitoring the users smartphone sensors and determine when users are engaged in safe and unsafe driving behaviors.

> *one or more sensors associated with the WCD designed to produce sensor data, the sensor data indicative of physical movement of the WCD in three dimensional space and including data sets comprising three movement values and a time value, each of the three movement values indicative of physical movement of the WCD relative to a respective axis in a three dimensional (3D) coordinate system at the time value in order to permit statistical analysis of the physical movement;*

The Mentor applications use accelerometers with three or more axis sensors and/or gyroscopes with three or more axis sensors for monitoring three dimensional space(s) for representing the driver's movements (such as phone usage while driving, aggressive driving such as cornering and others). The data from the three-axis accelerometer and/or gyroscope data is measured by using time values for statistical analysis for determining human motions and activities.

> **No hardware required.** The Mentor app uses smartphone sensors to collect & analyze driver behaviors most predictive of risk including phone distraction. [https://www.edriving.com/mentor/].

Claim 12 continues:

> *one or more memories designed to store computer program code; and one or more processors designed to execute the computer program code, the computer program code comprising: code designed to determine mobile thing motion activity (MTMA) of the MT that is transporting the WCD based at least in part upon the sensor data and the statistical analysis of the physical movement of the WCD;*

The Mentor applications use smartphone memory to store the program code and use the smartphone processor(s) to execute the program code. The application code determines the motion activity for determining at least in part (user driving, using phone for text messaging, aggressively

cornering and others) through the use of the sensor data and the statistical analysis of the movement of the smartphone.

Claim 12 continues:

> *code designed to communicate the sensor data or a mobile thing motion activity (MTMA) of the MT that is transporting the WCD and that is derived from the sensor data via the one or more transceivers to the remote computer system in order to enable selection of the targeted advertisement that is suited for the determined MTMA; code designed to receive and locally communicate the advertisement to a user interface of the WCD; and*

The Mentor application code is designed to communicate sensor data or the identified motion activity (user driving, using phone for text messaging, aggressively cornering and others) to the server, and, on information and belief, the server has code designed to communicate the advertisement to the smartphone. The smartphone code is designed to display the advertisement to the smartphone screen.

> *wherein the code designed to determine the MTMA comprises: code designed to store a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA; code designed to determine a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system;*

The Mentor application code normalizes the live data into sets of data that may be measured in the frequency and time domains and allows the live 3D (three or more axes from the accelerometer and/or gyroscope) data to be compared to the reference data. Code is used to determine time separations so the raw data so it may be analyzed in a 3D coordinate system.

> *code designed to, using the normalizing mathematical relationship, determine normalized data sets; code designed to analyze the normalized data sets in the frequency and time domains; code designed to determine likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and code designed to select a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

The Mentor application code is used to match timed data and analyze the normalized data sets in the frequency and time domains. The code determines the likelihoods of the stored reference data and selects the most likely motion activity from a plurality of reference data (signatures) based on such likelihoods.

30.

Claim 13 of the ’846 Patent, for example, recites:

> *13. The WCD of claim 12, wherein the program code further comprises code to determine an identification (ID) associated with the MT and wherein the code to select the advertisement makes the selection based at least in part upon the determined ID of the user.*

On information and belief, Defendant’s Mentor application shares the unique user identification, and the advertisement is selected based on the unique smartphone ID.

31.

Claim 14 of the ’846 Patent, for example, recites:

> *14. The WCD of claim 12, wherein the program code further comprises code to determine a location of the WCD and wherein the code to select the advertisement makes the selection based at least in part upon the location.*

On information and belief, Defendant’s Mentor application determines a user’s location via the smartphone and provides advertisements when the user finishes an activity such as driving.

32.

Claim 15 of the ’846 Patent, for example, recites:

> *15. The WCD of claim 12, wherein the sensor data is derived from an accelerometer, a gyroscope, or both.*

As demonstrated, *supra* with respect to Claim 1, Defendant’s Mentor uses sensor data from the accelerometer and the gyroscope.

33.

Claim 16 of the ’846 Patent, for example, recites:

> *16. The system of claim 12, wherein the computer program code further comprises: code to determine a mathematical relationship between different data sets to enable analysis of the different data sets in the 3D coordinate system; and code to determine the MTMA based at least in part upon the analysis of the different data sets in the 3D coordinate system.*

The Mentor application uses code to determine a mathematical relationship between different data sets from the accelerometer and/or gyroscope in the 3D coordinate system.

34.

Independent Claim 17 of the '846 Patent, shown in italics, recites:

> *17. A computer system that can communicate with a remote wireless communication device (WCD) transported by a mobile thing (MT), comprising: one or more transceivers designed to communicate with the remote WCD; one or more memories designed to store computer program code; and one or more processors designed to execute the computer program code, the computer program code comprising:*

The Mentor services use smartphones ("wireless communication devices") for determining human motions and activities including phone usage while driving, when users drive aggressively and dangerously by monitoring fast cornering such as quick sharp turns and others.

> *code to receive sensor data from the WCD or mobile thing motion activity (MTMA) information associated with the MT that is derived from the sensor data from the WCD via the one or more transceivers, the sensor data produced by one or more sensors associated with the WCD, the sensor data indicative of physical movement of the WCD along each axis in a three dimensional (3D) space; code to select an advertisement based at least in part upon the sensor data or the MTMA information, whichever is received; code to cause the advertisement to be communicated to the WCD; and*

The Mentor applications use accelerometers with three or more axis sensors and/or gyroscopes with three or more axis sensors for monitoring three dimensional space(s) for representing the driver's movements (such as phone usage while driving, aggressive driving such as cornering and others). The data from the three-axis accelerometer and/or gyroscope data is measured by using time values for statistical analysis for determining human motions and activities. On information and belief, Mentor includes code to cause an advertisement to be communicated to the smartphone

based on determined the motion activity. On information and belief, the Mentor system provides for determination of a user's estimated discount score by measuring the motion activities when the user is driving. The driving discount advertisements are designed to promote safe driving, and in-return Solera customers increase profits by reducing insurance claims/expenses. Driving discount advertisements are determined by monitoring the users smartphone sensors and determine when the use is engaged in safe and unsafe driving behaviors.

> *wherein the code designed to determine the MTMA comprises: code designed to store a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA; code designed to determine a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system; code designed to, using the normalizing mathematical relationship, determine normalized data sets; code designed to analyze the normalized data sets in the frequency and time domains;*

The applications use smartphone memory to store the program code; and use the smartphone processor(s) to execute the program code: the application code determines the motion activity for determining at least in part (user driving, using phone for text messaging, aggressively cornering and others) through the use of the sensor data and the statistical analysis of the movement of the smartphone. Code is designed to communicate sensor data or the identified motion activity (user driving, using phone for text messaging, aggressively cornering and others) to the server and the server has code designed to communicate the advertisement to the smartphone; the smartphone code is designed to display the advertisement to the smartphone screen.

Claim 17 continues:

> *code designed to determine likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and*

The Mentor application code is designed to determine the range and/or likelihood of matching motion activity signatures, based on analysis.

> *code designed to select a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

The Mentor application code designed to select the signature that matches from a group or list of motion activities.

35.

Claim 18 of the '846 Patent, for example, recites:

> *18. The system of claim 17, wherein the advertisement is communicated to the WCD via an email or text message.*

On information and belief, Defendant provides Mentor weekly summary emails. Participants are automatically enrolled to receive weekly summary emails.

36.

Claim 19 of the '846 Patent, for example, recites:

> *19. The system of claim 17, wherein the program code further comprises code to determine an identification (ID) of the MT and wherein the code to select the advertisement makes the selection based at least in part upon the determined ID.*

On information and belief, the Mentor application receives advertisements promoting scores for earning awards for safe driving scores based on the unique ID of the smartphone. This allows the server to message directly to the application user based on updated advertisements.

37.

Claim 20 of the '846 Patent, for example, recites:

> *20. The system of claim 17, wherein the program code further comprises code to determine a location of the WCD and wherein the code to select the advertisement makes the selection based at least in part upon the location.*

On information and belief, the Mentor application determines the user's location via the smartphone and provides advertisements when the user finishes an activity such as driving.

38.

Claim 21 of the ’846 Patent, for example, recites:

> *21. The system of claim 17, wherein the program code further comprises code to receive a payment for or otherwise cause receipt of a monetary benefit for causing the advertisement to be communicated.*

On information and belief, Defendant’s Mentor system allows an entity receives a monetary financial benefit by providing advertisements to customers, attracting new customers with an opportunity to save by learning how to drive without distractions, without aggressive cornering, breaking and acceleration.

39.

Claim 22 of the ’846 Patent, for example, recites:

> *22. The system of claim 17, wherein the sensor data is derived from an accelerometer, a gyroscope, or both.*

The Mentor application uses the smartphone’s accelerometer, gyroscope, or both.

40.

Independent Claim 23 of the ’846 Patent, shown in italics, recites:

> *23. A system for use in connection with a wireless communication device (WCD) transported by a mobile thing (MT), comprising: means for determining a mobile thing motion activity (MTMA) associated with the MT that is transporting the WCD based at least in part upon sensor data, the sensor data derived from one or more sensors associated with the WCD, the one or more sensors measuring physical movement of the WCD in three dimensional space and producing data sets comprising three movement values and a time value, each of the three movement values indicative of physical movement of the WCD relative to a respective axis in a three dimensional (3D) coordinate system at the time value in order to permit statistical analysis of the physical movement;*

Defendant’s Mentor services use smartphones (“wireless communication devices”) for determining human motions and activities. The Mentor applications use the accelerometers with three or more axis sensors and/or gyroscopes with three or more axis sensors for monitoring three

dimensional space(s) for representing the driver's movements (such as phone usage while driving, aggressive driving such as cornering and others). The data from the three-axis accelerometer and/or gyroscope data is measured by using time values for statistical analysis for determining human motions and activities. On information and belief, the Mentor application includes code to cause the advertisement to be communicated to the smartphone based on determined motion activity.

Claim 23 continues:

> *means for selecting an advertisement based at least in part upon the determined MTMA; means for causing the advertisement to be communicated to the WCD; and wherein the means for determining the MTMA comprises:*

On information and belief, the Mentor applications monitor vehicle drivers and their activity to create an advertisement for display.

> *mean for storing a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA; means for determining a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system;*

The applications use smartphone memory to store the program code; and use the smartphone processor(s) to execute the program code: the application code determines the motion activity for determining at least in part (user driving, using phone for text messaging, aggressively cornering and others) through the use of the sensor data and the statistical analysis of the movement of the smartphone. Code is designed to communicate sensor data or the identified motion activity (user driving, using phone for text messaging, aggressively cornering and others) to the server, and, on information and belief, the server has code designed to communicate the advertisement to the smartphone. The smartphone code is designed to display the advertisement to the smartphone screen.

Claim 23 continues:

> *means for, using the normalizing mathematical relationship, determining normalized data sets; means for analyzing the normalized data sets in the frequency and time domains;*

Solera code is designed to normalize the live accelerometer and/or gyroscope data so it may be analyzed in frequency and time domains.

> *means for determining likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and means for selecting a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

The code designed to select the signature that closely matches from a group or list of motion activities.

COUNT II

DIRECT INFRINGEMENT OF THE '558 PATENT

41.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

42.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the '558 Patent, through, among other activities, making, using, and incorporating into Defendant's Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant's Mentor applications are provided as smartphone-deployed driver-centric-behavior-based solutions to many industries (delivery, distribution, human health, and others).

43.

Independent Claim 1 of the '558 Patent, shown in italics, recites:

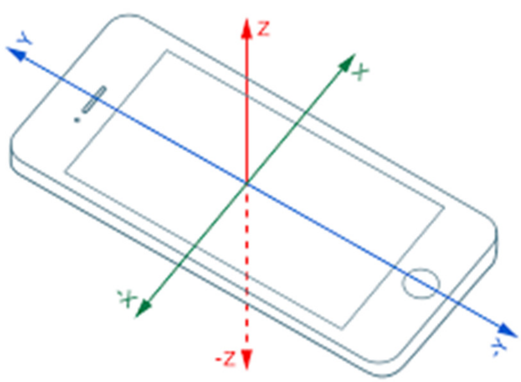
> *1. A method, comprising: receiving a time value and at least three streams of data sample values from one or more sensors of a wireless*

> *communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of movement of the WCD at a corresponding time value;*

Mentor uses wireless communication devices for determining human activities including driving vehicles, riding in vehicles while not driving, aggressively driving, distractedly driving, and others, by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor. In particular, Mentor uses native applications running on top of the operating systems of smartphones that are equipped with an accelerometer and gyroscope sensors for monitoring three streams of data ("the *x*, *y*, and *z* axis") from each device. The Mentor software monitors the accelerometer sensor for linear acceleration and the gyroscope sensor for angular velocity to determine human activities (from sensor data), when users are not in vehicles, driving vehicles, riding in vehicles, when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, and when they handle and/or use smartphones while driving. Accelerometers are sensors which measure acceleration, the change in velocity over time (SI unit: m/s^2). The Mentor programs measure acceleration of the user and driver in time-segments, using first, second, et cetera, to confirm multiple time-segment matches to confirm most human activities.

Claim 1 continues:

> *recognizing a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system;*



The Mentor application uses the smartphone's accelerometer *x*, *y* and *z* axis data to measure linear acceleration and/or the gyroscope *x*, *y*, and *z* axis data to measure angular velocity to sense and determine the orientation so that driving may be accurately measured. Defining the orientation determines a reference and orientation allow and/or to increase the accuracy of identifying a

Motion Activity (MT). Defining the ongoing stream of data representing forward momentum and/or gravity the data is measured and used for determining orientation in the coordinate system. In other words, Mentor uses the smartphone's accelerometer *x*, *y* and *z* axis to detect the linear acceleration of gravity for determining the orientation of the three dimensional (3D) coordinate system (accelerometer) so it may accurately measure human activities.

> *computing reference data based upon the recognition of the particular set, the reference data defining a relationship between each set of subsequent non-reference data sample values and the particular reference set of data sample values in the coordinate system;*

Defendant's Mentor application computes reference data and particular sets of non-reference data. Each segment of reference data represents acceleration in an *x*, *y* or *z* axis over a period of time. In particular, Mentor computes reference data with data sets coming from knowing at least one orientation identified through the acceleration that comes from earth's gravity and the other accelerations that are determined by the user's activity are measured by the accelerometers *x*, *y* or *z* axis. Mentor determines when a user is aggressively driving, for example sharp cornering by measuring sharp cornering reference data to horizontal acceleration in multiple data sets coming from the *x*, *y*, and *z* axis of the accelerometer when a user is driving.

> *calculating movement data in the coordinate system of one or more other non-reference data sample values based upon the reference data; and*

Mentor computes movement data including acceleration in *x*, *y* and *z* axes over a periods of time. Mentor computes reference data and multiple data sets coming from accelerations that are measured by the accelerometers *x*, *y* and *z* axes over periods of time.

> *determining a mobile thing motion activity (MTMA) associated with the MT based upon the movement data.*

By comparing the Mentor reference data with the accelerometer data, and optionally GPS data, users driving and safe/unsafe styles of driving (e.g., hard braking or fast acceleration) are determined from the movement data.

44.

Claim 2 of the '558 Patent, for example, recites:

> *2. The method of claim 1, further comprising: prior to recognizing, mathematically combining the data sample values of the particular reference set; and recognizing the particular reference set as the reference when a combined value has a magnitude that is indicative of a relationship to Earth gravity.*

Defendant's Mentor applications use the smartphone's accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Because smartphone movements are dynamic, i.e., the phone's orientation is not static and therefore an unknown variable, Mentor monitors the direction of the Earth's gravity to establish the current orientation of the device by totaling the three accelerometer axis (x, *y* and *z*) data over short time periods that is equal to the Earth's gravity (9.807 m/s^2).

45.

Claim 3 of the '558 Patent, for example, recites:

> *3. The method of claim 2, further comprising updating the reference data each time the reference set of data samples is recognized.*

On information and belief, the Mentor application uses short time periods between 1 and 200ths of a second to recalculate the direction of the Earth's gravity ("9.807"). This provides an updated orientation of the smartphone device (multiple times per second).

46.

Claim 4 of the '558 Patent, for example, recites:

> *4. The method of claim 1, wherein: each set of data sample values includes a vector defined by three data sample values x, y, z; the reference data is a*

> *rotation matrix M; and the movement data comprises a vertical magnitude along the z axis and a horizontal magnitude along the x, y plane, both derived from a rotated vector, the rotated vector equal to the rotation matrix M multiplied by the vector associated with the other non-reference data sample values x, y, z.*

The Mentor application uses the smartphone's accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. After the direction of the Earth's gravity (9.807 m/s^2) is determined, for example, Mentor first determines the vertical direction, then a second horizontal direction is determined by rotating the vector for measuring forward/backwards acceleration/braking and fast cornering types of vehicle movements through acceleration on a horizontal plane. This method is also used for determining when a user is handling or using their smartphone while driving.

47.

Claim 5 of the '558 Patent, for example, recites:

> *5. The method of claim 4, further comprising: transforming the movement data to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part upon the FD statistical metrics.*

The Mentor application processes the smartphone's accelerometer *x*, *y* and *z* axis data in a frequency domain (FD) to determine at least part of the motion activity. Mentor uses Fast Fourier Transform (FFT) to convert the users smartphone accelerometer data to frequency domain from time domain. The frequency domain provides enhanced measurements of *x*, *y* and *z* axis data, including the band power of the signal, the energy (summation of the squared FFT parameters - coefficients), and the magnitude. Mentor determines the motion activity, at least in part by the mean, maximum and minimum values of accelerometer's *x*, *y* and *z* axis that come from the smartphone's movements.

48.

Claim 6 of the ’558 Patent, for example, recites:

> *6. The method of claim 5, wherein the MTMA is identified from a set of MTMAs and further comprising: computing a score for each MTMA of the set; and comparing the scores to identify the MTMA.*

The Mentor application uses a list of motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone.

49.

Claim 7 of the ’558 Patent, for example, recites:

> *7. The system of claim 5, wherein the MTMA is identified from a set of MTMAs and wherein the computer program code further comprises: code to compute a score for each MTMA of the set; and code to compare the scores to identify the MTMA.*

The Mentor application uses a list of motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone. Each data set, such as sharp cornering provides an acceleration level (i.e. score) and will be used in determining when a violation/negative event occurs for the driver.

50.

Claim 8 of the ’558 Patent, for example, recites:

> *8. The method of claim 1, wherein the MTMA is identified from a set of MTMAs and further comprising: computing a score for each MTMA of the set; and comparing the scores to identify the MTMA*

The Mentor application uses a list of motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone. Each data set, such as sharp cornering provides an acceleration level (i.e. score) and will be used in determining when a violation/negative event occurs for the driver.

51.

Claim 9 of the ’558 Patent, for example, recites:

> *9. The method of claim 1, wherein the reference data is in the form of a rotation matrix that normalizes the sets of non-reference data sample values with respect to Earth gravity.*

The Mentor application determines driving behaviors such as sharp cornering, fast acceleration, and hard braking by determining and measuring a horizontal motion through a rotation matrix to Earth’s gravity.

52.

Claim 10 of the ’558 Patent, for example, recites:

> *10. The method of claim 1, wherein the movement data is in the time domain (TD) and wherein the computing comprises: computing a magnitude of the movement data in each of the two dimensions of space; computing one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

The Mentor application measures acceleration by magnitude and time to determine motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone.

53.

Claim 11 of the ’558 Patent, for example, recites:

> *11. The method of claim 10, further comprising: transforming the magnitudes from the TD to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA determining is based at least in part the FD statistical metrics.*

The Mentor application processes the smartphone’s accelerometer *x*, *y* and *z* axis data in a frequency domain (FD) to determine at least part of the motion activity. Mentor uses Fast Fourier Transform to convert the users smartphone accelerometer data to frequency domain from time domain. The frequency domain provides enhanced measurements of *x*, *y* and *z* axis data, including

the band power of the signal, the energy (summation of the squared FFT parameters - coefficients), and the magnitude. Mentor determines the motion activity, at least in part by the mean, maximum and minimum values of accelerometer's *x*, *y* and *z* axis that come from the smartphone's movements.

54.

Claim 12 of the '558 Patent, for example, recites:

> *12. The system of claim 10, wherein the computer program code further comprises: code to transform the magnitudes from the TD to the frequency domain (FD) to produce FD data; code to compute one or more FD statistical metrics from the FD data; and wherein the MTMA determining is based at least in part the FD statistical metrics.*

Mentor measures acceleration by magnitude and time to determine motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone. The frequency domain (FD) may be updated by analysis over time and used to determine the motion activity.

55.

Claim 13 of the '558 Patent, for example, recites:

> *13. The method of claim 1, wherein one or more of the steps of the method is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

On information and belief, the Mentor system may use servers and other remote computers to implement one or more of the steps to measure, determine and/or rate the acceleration to determine motion activities.

56.

Claim 14 of the '558 Patent, for example, recites:

> *14. The system of claim 1, wherein the MTMA is identified from a set of MTMAs and wherein the computer program code further comprises: code*

> *to compute a score for each MTMA of the set; and code to compare the scores to identify the MTMA.*

Mentor identifies a motion activity (normal driving and dangerous driving, such as sharp cornering, phone usage and others) by computing a score related to an activity match, and when close, the activity is determined.

57.

Claim 15 of the '558 Patent, for example, recites:

> *15. The system of claim 1, wherein the reference data is in the form of a rotation matrix that normalizes the sets of non-reference data sample values with respect to Earth gravity.*

The Mentor application determines driving behaviors such as sharp cornering, fast acceleration, and hard braking by determining and measuring a horizontal motion through normalizing the data in a directional analysis to Earth's gravity.

58.

Claim 16 of the '558 Patent, for example, recites:

> *16. The system of claim 1, wherein the system is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

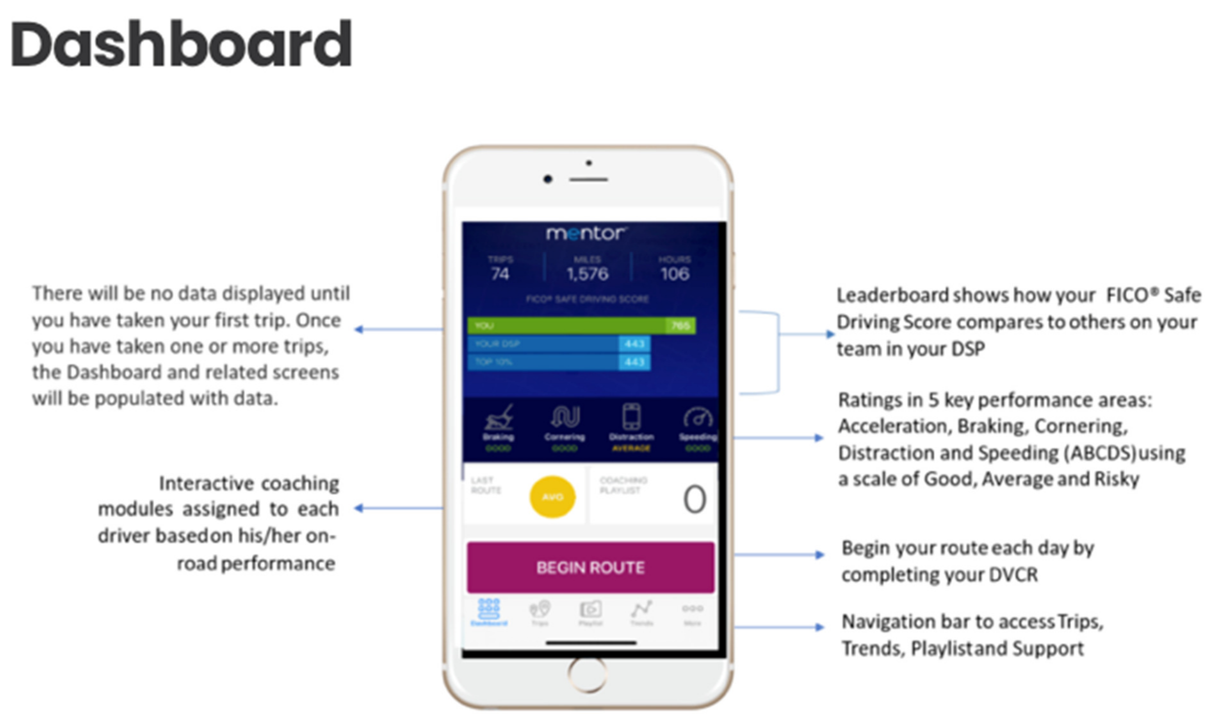
On information and belief, Defendant's Mentor system may use servers and other remote computers to implement one or more of the steps to measure, determine and/or rate the acceleration to determine motion activities.

59.

Independent Claim 17 of the '558 Patent, shown in italics, recites:

> *17. A method, comprising: receiving first and second data from one or more sensors associated with a wireless communication device (WCD) transported by a mobile thing (MT), the first and second data indicative of movement of the WCD;*

Defendant's Mentor uses wireless communication devices for determining human activities including when users are driving vehicles, riding in vehicles (not driving), when users are aggressively driving, when they are using of smartphones and distracted while driving, when in accidents, and others by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor. In particular, the Solera Mentor programs use smartphones equipped with an accelerometer and gyroscope sensors for monitoring three streams of data ("the *x*, *y*, and *z* axis") from each device. The Mentor software monitors the accelerometer sensor for linear acceleration and the gyroscope sensor for angular velocity to determine human activities. Accelerometers are sensors which measure acceleration, the change in velocity of an object over time (SI unit: m/s^2). The Mentor application measures acceleration of the user and driver in time-segments, using first, second, et cetera, to confirm multiple time-segment matches to confirm most human activities.



Claim 17 continues:

> *determining reference data that defines a reference framework from the first data;*

Mentor uses reference accelerometer data for the *x*, *y*, and *z* axes that have been averaged and normalized.

> *normalizing the second data with the reference data so that the second data can be analyzed in the reference framework; and*

The accelerometer data is normalized by time, by adjusting values or series of data, and/or by combining axis data for processing with reference data. Peak frequencies, time between peaks, rounding, and other processes may be used.

> *identifying a mobile thing motion activity (MTMA) associated with the MT based upon the normalized second data.*

By comparing the Solera reference data with the accelerometer data, users driving and safe/unsafe styles of driving (hard braking/fast acceleration) may be determined from the movement data.

60.

Claim 18 of the '558 Patent, for example, recites:

> *18. The method of claim 17, wherein the second data comprises a plurality of periodic samples.*

On information and belief, Defendant's Mentor application uses different sample rates based on the activity, such as determining if a user is walking or driving a car. If a person is not driving, periodic samples are used to reduce sensor and battery usage (GPS is not turned on until the user is driving).

61.

Claim 19 of the '558 Patent, for example, recites:

> *19. The method of claim 17, wherein the reference data is indicative of a relationship to Earth gravity.*

Mentor uses the smartphone's accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Smartphone movements are dynamic, therefore Solera monitors the direction of the Earth's gravity to establish an orientation of the device by totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity (9.807 m/s^2).

62.

Claim 20 of the '558 Patent, for example, recites:

> *20. The method of claim 17, wherein the reference data is determined in the form of vector information indicative of a relation to Earth gravity by comparing the first data to a predefined numerical range.*

The Mentor application uses the smartphone's accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Because smartphone movements are dynamic and the phone's orientation is not a given variable, Mentor monitors the direction of the Earth's gravity to establish an orientation of the device by totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity (9.807 m/s^2).

63.

Claim 21 of the '558 Patent, for example, recites:

> *21. The method of claim 20, wherein the one or more sensors produce first, second, and third sample data along each of 3 axes in a three dimensional (3D) coordinate system and wherein the first data pertains to a value that equals one within a predefined range, the value computed by combining the first, second, and third sample data.*

Mentor uses the smartphone's accelerometer *x*, *y* and *z* axis data to measure linear acceleration and/or the gyroscope *x*, *y*, and *z* axis data to measure angular velocity to sense data over multiple samples to accurately identify the motion activity.

64.

Claim 22 of the '558 Patent, for example, recites:

> *22. The method of claim 17, wherein the second data is in the time domain (TD) and wherein the identifying comprises: computing magnitudes of the second data in each of the two dimensions of the 2D space; computing one or more TD statistical metrics from the magnitudes; and wherein the MTMA identifying is based at least in part upon the TD statistical metrics.*

Mentor identifies a motion activity (normal driving and dangerous driving, such as sharp cornering, phone usage and others) by monitoring and computing the magnitudes of the data in a two dimension time domain. Mentor uses Fast Fourier Transform to convert the users smartphone accelerometer data to frequency domain from time domain. The frequency domain provides enhanced measurements of *x*, *y* and *z* axis data, including the band power of the signal, the energy (summation of the squared FFT parameters - coefficients), and the magnitude. Mentor determines the motion activity, at least in part by the mean, maximum and minimum values of accelerometer's *x*, *y* and *z* axis that come from the smartphone's movements.

65.

Claim 23 of the '558 Patent, for example, recites:

> *23. The method of claim 22, further comprising: transforming the magnitudes from the TD to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part the FD statistical metrics.*

Defendant's Mentor application measures acceleration by magnitude and time to determine motion activities such as driving, riding, fast acceleration or hard braking when driving, fast/sharp cornering, and when the user is holding and making calls with their phone. The frequency domain (FD) may be updated by analysis from the time domain (TD) and used to determine the motion activity. On information and belief, Mentor uses statistical metrics that is collected over time, to update motion activity data for matching.

66.

Claim 24 of the '558 Patent, for example, recites:

> *24. The method of claim 23, wherein the MTMA is identified from a known plurality of MTMAs and further comprising: computing a score for each MTMA of the known plurality; and comparing the scores to identify the MTMA.*

Defendant's Mentor system identifies a motion activity (normal driving and dangerous driving, such as sharp cornering, phone usage and others) by computing a score related to an activity match, and when close the activity is determined.

67.

Claim 25 of the '558 Patent, for example, recites:

> *25. The method of claim 17, wherein one or more of the steps of the method is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

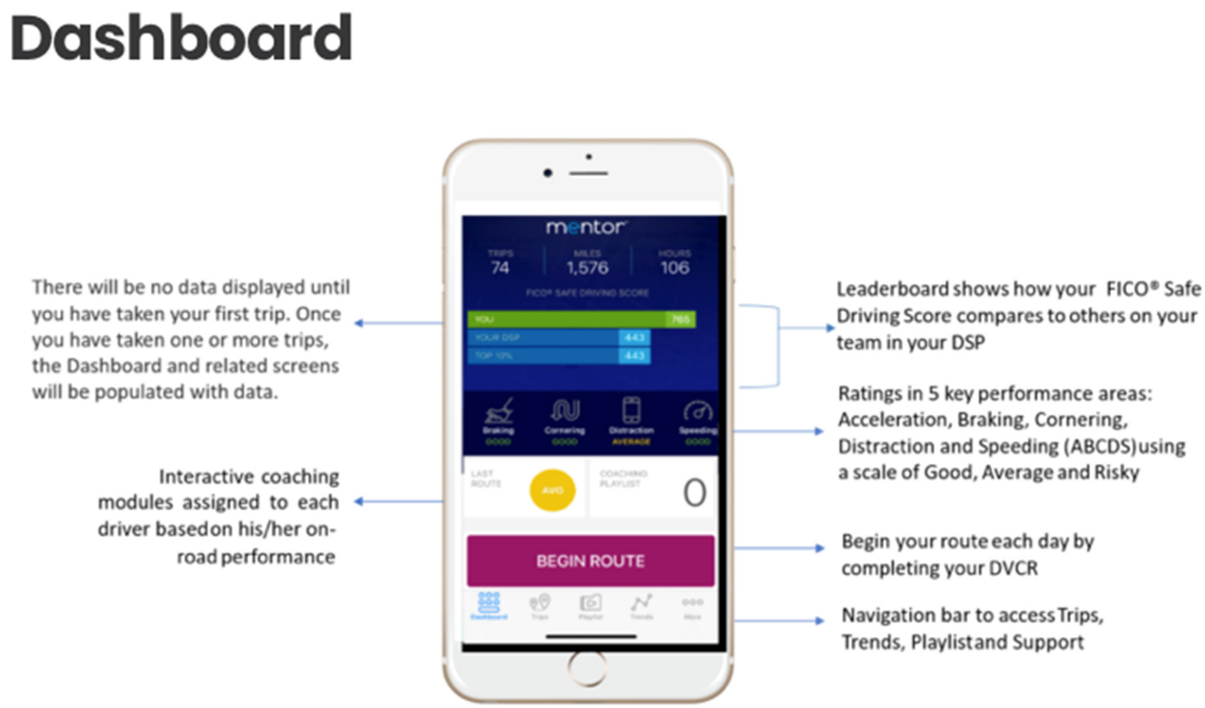
Defendant's Mentor system may use servers and other remote computers to implement one or more of the steps to measure, determine and/or rate the acceleration to determine motion activities.

68.

Claim 26 of the '558 Patent, for example, recites:

> *26. The method of claim 17, further comprising: determining an MTMA based action to be initiated based upon the identified MTMA; and initiating the MTMA based action.*

On information and belief, Mentor determines when a user is walking, then determines when the user is driving to activate and monitor GPS and other types of monitoring processes based on the motion activity.



69.

Independent Claim 27 of the ’558 Patent, shown in italics, recites:

> *27. A method for implementation in a wireless communication device (WCD) that is designed to detect a plurality of mobile thing motion activities (MTMAs) associated with a mobile thing (MT), comprising:*

Defendant’s Mentor system uses wireless communication devices for determining human activities including driving vehicles, riding in vehicles and not driving, when users are aggressively driving, when they are using of smartphones and distracted while driving, and others by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *receiving a plurality of data sample values from one or more sensors of the WCD that is transported by the MT, the data sample values indicative of movement of the WCD;*

Mentor collects and processes accelerometer sensor data when users are in possession of their wireless communication device.

> *computing reference data, the reference data defining a relationship between data sample values and a reference framework to enable comparison of data sample values; calculating movement data based upon the reference data and the data sample values; and*

Mentor computes reference data within a framework (values, size, time, peaks, frequencies, filtering out dominant frequencies, et cetera) with accelerometer data samples that come from wireless communication device.

> *determining an MTMA associated with the MT based upon the movement data.*

By comparing the Mentor reference data with the accelerometer data, users driving and safe/unsafe styles of driving (hard braking/fast acceleration) may be determined from the movement data.

70.

Claim 28 of the ’558 Patent, for example, recites:

> *28. The method of claim 27, further comprising: recognizing a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system; determining a rotation matrix based upon the particular set of reference data sample values; and calculating the movement data based upon the rotation matrix and one or more sets of the data sample values that are not the particular reference set.*

Mentor applications use the smartphone’s accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth’s gravity. After the direction of the Earth’s gravity is determined, for example, Mentor first determines the vertical direction, then a second horizontal direction is determined by rotating the vector for measuring forward/backwards and fast cornering types of vehicle movements through acceleration on a horizontal plane. The same method also used for determining when the user is handling or using their smartphone while driving.

71.

Claim 29 of the ’558 Patent, for example, recites:

> *29. The method of claim 27, wherein the data sample values are received from a plurality of the sensors.*

Mentor applications use the smartphone's accelerometer *x*, *y* and *z* axis and the gyroscope *x*, *y*, and *z* axis, magnatometer, touch screen, and GPS data samples for determining at least part of the motion activities.

72.

Claim 30 of the '558 Patent, for example, recites:

> *30. The method of claim 29, wherein the plurality of sensors includes at least an accelerometer and a gyroscope.*

Mentor applications use the smartphone's accelerometer *x*, *y* and *z* axis and the gyroscope *x*, *y*, and *z* axis for determining at least part of the motion activities.

73.

Claim 31 of the '558 Patent, for example, recites:

> *31. The method of claim 30, wherein the plurality of sensors further includes a global positioning system (GPS) receiver.*

Mentor applications use the smartphone's accelerometer *x*, *y* and *z* axis, the gyroscope *x*, *y*, and *z* axis and a global positioning system (GPS) for determining at least part of the motion activities.

74.

Claim 32 of the '558 Patent, for example, recites:

> *32. The method of claim 27, wherein the MTMA is determined by: computing a score for each MTMA of the plurality; and comparing the scores to identify the MTMA.*

Defendant's Mentor application uses a score that matches different motion activities. The score includes at least the frequency domain and/or the time domain for multiple data samples.

75.

Claim 33 of the '558 Patent, for example, recites:

> *33. The method of claim 27, wherein the reference data is indicative of a relationship to Earth gravity.*

Solera uses reference data to match sensor data that corresponds to Earth's gravity.

76.

Claim 34 of the '558 Patent, for example, recites:

> *34. The method of claim 27, wherein the movement data is in the time domain (TD) and wherein the calculating comprises: computing a magnitude of the movement data in each of at least two dimensions of space; computing one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

Mentor applications process the smartphone's accelerometer *x*, *y* and *z* axis data in a frequency domain (FD) to determine at least part of the motion activity. Mentor uses the frequency domain to determine the maximum and minimum values of accelerometer's *x*, *y* and *z* axis in a two dimensional space so a time domain may enhance types of motion activities from the smartphone's movements.

77.

Claim 35 of the '558 Patent, for example, recites:

> *35. The method of claim 34, further comprising: transforming the magnitudes from the TD to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA determining is based at least in part the FD statistical metrics.*

Mentor further transforms the magnitudes from the time domain to the frequency domain to form frequency domain data. Statistical metrics at least in part determine the motion activity. Mentor uses Fast Fourier Transform to convert the users smartphone accelerometer data to frequency domain from time domain. The frequency domain provides enhanced measurements of *x*, *y* and *z* axis data, including the band power of the signal, the energy (summation of the squared FFT parameters - coefficients), and the magnitude. Mentor determines the motion activity, at least in

part by the mean, maximum and minimum values of accelerometer's *x*, *y* and *z* axis that come from the smartphone's movements.

78.

Independent Claim 36 of the '558 Patent, shown in italics, recites:

> *36. A system, comprising: one or more memories designed to store computer program code; one or more processors designed to execute the computer program code; and wherein the computer program code comprises:*

Defendant's Mentor system uses native applications running on top of the operating systems of smartphones that use memories, processors.

> *code to receive a time value and at least three streams of data sample values from one or more sensors of a wireless communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of movement of the WCD at a corresponding time value;*

Mentor native applications monitor the accelerometer and gyroscope sensors for monitoring three streams of data ("the *x*, *y*, and *z* axis") from each device. The Mentor software monitors the accelerometer sensor for linear acceleration and the gyroscope sensor for angular velocity to determine human activities (from sensor data), when users are not in vehicles, driving vehicles, riding in vehicles, when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, and when they handle and/or use smartphones while driving. Accelerometers are sensors which measure acceleration, the change in velocity over time. The Mentor programs measure acceleration of the user and driver in time-segments, using first, second, et cetera, to confirm multiple time-segment matches to confirm most human activities.

> *code to recognize a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system;*

Because smartphone movements are dynamic and therefore a phone's orientation is not a given, Mentor monitors the direction of the Earth's gravity to establish an orientation of the device by

totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity (9.807 m/s^2).

> *code to compute reference data based upon the recognition of the particular set, the reference data defining a relationship between each set of subsequent non-reference data sample values and the particular reference set of data sample values in the coordinate system; code to calculate movement data in the coordinate system of one or more other non-reference data sample values based upon the reference data;*

Mentor computes reference data within a framework (values, size, time, peaks, frequencies, filtering out dominant frequencies, etc.) with accelerometer data samples that come from wireless communication device.

> *and code to determine a mobile thing motion activity (MTMA) associated with the MT based upon the movement data.*

Mentor determines when users are not in vehicles, driving vehicles, riding in vehicles, when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, and when they handle and/or use smartphones while driving.

79.

Claim 37 of the '558 Patent, for example, recites:

> *37. The system of claim 36, wherein the computer program code further comprises: code to mathematically combine the data sample values of the particular reference set; and code to recognize the particular reference set as the reference when a combined value has a magnitude that is indicative of a relationship to Earth gravity.*

Mentor applications use the smartphone's accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Smartphone movements are dynamic; therefore Solera monitors the direction of the Earth's gravity to establish an orientation of the device by totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity.

80.

Claim 38 of the '558 Patent, for example, recites:

> *38. The system of claim 37, wherein the computer program code further comprises code to update the reference data each time the reference set of data samples is recognized.*

Mentor automatically updates the orientation and the *x*, *y* and *z* axis data as the smartphone changes is rotational degrees, so the vertical and/or horizontal measurements may be made.

81.

Claim 39 of the '558 Patent, for example, recites:

> *39. The system of claim 36, wherein: each set of data sample values includes a vector defined by three data sample values x, y, z; the reference data is a rotation matrix M; and the movement data comprises a vertical magnitude along the z axis and a horizontal magnitude along the x, y plane, both derived from a rotated vector, the rotated vector equal to the rotation matrix M multiplied by the vector associated with the other non-reference data sample values x, y, z.*

Mentor recalculates accelerometer axis data by adding, subtracting and/or combining accelerometer axis data based on a vertical magnitude and horizontal magnitude so the *x*, *y* and *z* axis data. Compared to horizontal and vertical smartphone movements, driving, braking, fast acceleration, smartphone usage while driving, and other motion activities may be accurately determined and measured.

82.

Claim 40 of the '558 Patent, for example, recites:

> *40. The system of claim 39, wherein the computer program code further comprises: code to transform the movement data to the frequency domain (FD) to produce FD data; code to compute one or more FD statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part upon the FD statistical metrics.*

Mentor applications process the smartphone's accelerometer *x*, *y* and *z* axis data in a frequency domain (FD) to determine at least part of the motion activity. Mentor uses the frequency domain to determine the maximum and minimum values of accelerometer's *x*, *y* and *z* axis in a two

dimensional space so a time domain may enhance types of motion activities from the smartphone's movements.

83.

Claim 41 of the '558 Patent, for example, recites:

> *41. The system of claim 36, wherein the movement data is in the time domain (TD) and wherein the code to compute comprises: code to compute a magnitude of the movement data in each of the two dimensions of space; code to compute one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

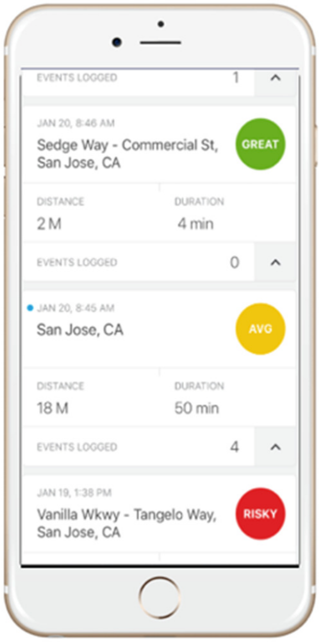
Mentor uses a discrete wavelet transform to convert data to time-frequency domain from time domain. This provides a two dimensional representation of the power/magnitude of the signal and detailed coefficients through a statistical metrics so part of the motion activity may be determined.

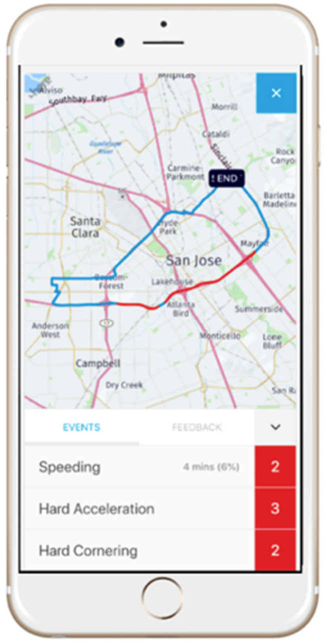
84.

Independent Claim 42 of the '558 Patent, shown in italics, recites:

> *42. A system, comprising: one or more memories designed to store computer program code; one or more processors designed to execute the computer program code; and wherein the computer program code comprises:*

The Solera Mentor system uses wireless communication devices for determining human activities including driving vehicles, riding in vehicles and not driving, when users are aggressively driving, when they are using of smartphones and distracted while driving, and others by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor. The Solera Mentor system uses native applications running on top of the operating systems of smartphones that use memories, processors.





> *code to receive first and second data from one or more sensors associated with a wireless communication device (WCD) transported by a mobile thing (MT), the first and second data indicative of movement of the WCD;*

Mentor includes code that receives accelerometer data associated with a wireless communication device. The accelerometer data is indicative of the movement of the wireless communication device. Mentor uses accelerometers within smartphones for determining human activities including driving vehicles, riding in vehicles and not driving, when users are aggressively driving, when they are using of smartphones and distracted while driving, and others by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *code to determine reference data that defines a reference framework from the first data;*

Mentor includes code that defines how reference data for driving vehicles, hard braking, fast acceleration, and others will be compared to actual movements/acceleration. Mentor includes code that determines a vertical and/or horizontal framework so the reference data may used in determining when users are driving vehicles, hard braking, fast acceleration, and others.

> *code to normalize the second data with the reference data so that the second data can be analyzed in the reference framework; and*

Data sets from the movements (acceleration) is normalized by values, ranges, frequencies and/or time so as to be compared to reference data. The Mentor code removes the rotational changes to the three dimensional (3D) coordinate system by normalizing the data with the gravity based determination of the vertical axis.

> *code to identify a mobile thing motion activity (MTMA) associated with the MT based upon the normalized second data.*

Mentor includes code that identifies motion activity, users driving and safe/unsafe styles of driving (hard braking/fast acceleration) based on the normalized data.

85.

Claim 43 of the ’558 Patent, for example, recites:

> *43. The system of claim 42, wherein the second data comprises a plurality of periodic samples.*

Mentor continually compares a plurality of accelerometer and/or gyroscope data samples from the smartphone.

86.

Claim 44 of the ’558 Patent, for example, recites:

> *44. The system of claim 42, wherein the reference data is indicative of a relationship to Earth gravity.*

Mentor uses the earth’s gravity to determine how to measure raw data against reference date.

87.

Claim 45 of the ’558 Patent, for example, recites:

> *45. The system of claim 42, wherein the reference data is determined in the form of vector information indicative of a relation to Earth gravity by comparing the first data to a predefined numerical range.*

Mentor uses the earth's gravity to determine a magnitude and direction numbers (vector) for comparing a predefined numerical range.

88.

Claim 46 of the '558 Patent, for example, recites:

> *46. The system of claim 45, wherein the one or more sensors produce first, second, and third sample data along each of 3 axes in a three dimensional (3D) coordinate system and wherein the first data pertains to a value that equals one within a predefined range, the value computed by combining the first, second, and third sample data.*

Accelerometers are sensors which measure acceleration in an *x*, *y* and *z* axis, the change in velocity over time (SI unit: m/s^2). The Mentor programs measure acceleration of the user and driver in time-segments, using first, second, et cetera, to confirm multiple time-segment matches to confirm most human activities.

89.

Claim 47 of the '558 Patent, for example, recites:

> *47. The system of claim 42, wherein the second data is in the time domain (TD) and wherein the code to identify comprises: code to compute magnitudes of the second data in each of the two dimensions of the 2D space; code to compute one or more TD statistical metrics from the magnitudes; and wherein the MTMA identifying is based at least in part upon the TD statistical metrics.*

Mentor uses a discrete wavelet transform to convert data to time-frequency domain from time domain. Mentor applications process the smartphone's accelerometer *x*, *y* and *z* axis data in a two dimensional space for statistical metrics, including magnitudes of a motion activity.

90.

Claim 48 of the '558 Patent, for example, recites:

> *48. The system of claim 47, wherein the computer program code further comprises: code to transform the magnitudes from the TD to the frequency domain (FD) to produce FD data; code to compute one or more FD*

> *statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part the FD statistical metrics.*

Mentor uses a discrete wavelet transform to convert data to time-frequency domain from time domain. This provides a two dimensional representation of the power/magnitude of the signal and detailed coefficients through a statistical metrics so part of the motion activity may be determined.

91.

Claim 49 of the '558 Patent, for example, recites:

> *49. The system of claim 48, wherein the MTMA is identified from a known plurality of MTMAs and wherein the computer program code further comprises: code to compute a score for each MTMA of the known plurality; and code to compare the scores to identify the MTMA.*

Mentor determines when a user is riding or driving in different types of vehicles by computing an average range and score that identifies which type vehicle the user is riding or driving. Mentor determines when a user is driving and accelerates too fast and/or brakes too hard or aggressively corners by assigning a number (score) that identifies motion activity types (for example, acceptable or unsafe).

92.

Claim 50 of the '558 Patent, for example, recites:

> *50. The system of claim 42, wherein the system is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

On information and belief, Defendant's Mentor application may communicate with servers and other remote computers to implement one or more of the steps in measuring and determining certain types of human activities.

93.

Claim 51 of the '558 Patent, for example, recites:

> *51. The system of claim 42, wherein the computer program code further comprises: code to determine an MTMA based action to be initiated based upon the identified MTMA; and code to initiate the MTMA based action.*

Mentor code determines a motion activity, such as when users are driving or riding in a vehicle, when accidents occur, and when users use their smartphone while driving; the identified motion activity will engage a different motion based activity, such as once driving is determined - it will monitor and report on hard braking, fast acceleration, aggressive cornering, and when users are unsafely using their smartphones, and when an accident is detected it will initiate another process for the user to respond (canceling the accident notification to 3rd parties) to the application within seconds and then engage accident information to 3rd parties (for assistance).

94.

Independent Claim 52 of the '558 Patent, shown in italics, recites:

> *52. A system for implementation in a wireless communication device (WCD) that is designed to detect a plurality of mobile thing motion activities (MTMAs) associated with a mobile thing (MT), comprising: one or more memories designed to store computer program code; one or more processors designed to execute the computer program code; and wherein the computer program code comprises:*

Defendant's Mentor uses wireless communication devices for determining human activities including driving vehicles, riding in vehicles and not driving, when users are aggressively driving, when they are using of smartphones and distracted while driving, and others by monitoring linear acceleration and angular velocity sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor. In particular, Mentor uses smartphones equipped with memories, processors, accelerometers for monitoring linear acceleration and gyroscopes for monitoring angular velocity over time periods for determining human activities such as driving vehicles, riding in vehicles and not driving, types of vehicles, when users are aggressively driving, when they are using of smartphones and distracted while driving, and others.

Dashboard

> *code to receive a plurality of data sample values from one or more sensors of the WCD that is transported by the MT, the data sample values indicative of movement of the WCD;*

Mentor includes code to monitor the *x*, *y*, and *z* axis of the accelerometers for measuring linear acceleration and gyroscopes for measuring angular velocity over time periods within smartphones that are indicative of movement of the wireless communication device.

> *code to compute reference data, the reference data defining a relationship between data sample values and a reference framework to enable comparison of data sample values;*

Mentor includes code that computes reference data with samples of live data to determine activities such as driving vehicles, hard braking and aggressive acceleration via activity identifications. In particular, Solera uses code that computes motion activity reference data that includes a numerical integral that derived from the sum of acceleration within a predefined time period.

> *code to calculate movement data based upon the reference data and the data sample values; and*

Mentor includes code that computes movement data based upon the reference data and samples of live data. Solera uses code that computes a numerical integral that's derived from the sum of acceleration within a predefined time period for a data sample value.

> *code to determine an MTMA associated with the MT based upon the movement data.*

Mentor includes code that identifies motion activity, users driving and safe/unsafe styles of driving (hard braking/fast acceleration) based on the normalized data. Mentor includes code that identifies the motion activity such as when users are not driving, driving, driving safely and when users drive unsafe (hard braking/fast acceleration/sharp or quick cornering), when using their phones while driving, and when accidents occur based on the accelerometer and/or gyroscope movement data.

95.

Claim 53 of the '558 Patent, for example, recites:

> *53. The system of claim 52, wherein the computer program code further comprises: code to recognize a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system; code to determine a rotation matrix based upon the particular set of reference data sample values; and code to calculate the movement data based upon the rotation matrix and one or more sets of the data sample values that are not the particular reference set.*

Mentor includes computer program code to recognize gravity measurements within the *x*, *y*, and *z* axis that defines an orientation. Code determines and extracts gravitational acceleration so an actual acceleration (without gravity's acceleration) may be accurately measured within data samples.

96.

Claim 54 of the '558 Patent, for example, recites:

> *54. The system of claim 52, wherein the data sample values are received from a plurality of the sensors.*

Mentor uses data sample values from accelerometer's and gyroscope's the *x*, *y* and *z* axis.

97.

Claim 55 of the ’558 Patent, for example, recites:

> *55. The system of claim 54, wherein the plurality of sensors include at least an accelerometer and a gyroscope.*

Mentor uses accelerometers sensors for monitoring linear acceleration and gyroscopes sensors for monitoring angular velocity over time periods for determining human activities.

98.

Claim 56 of the ’558 Patent, for example, recites:

> *56. The system of claim 55, wherein the plurality of sensors further includes a global positioning system (GPS) receiver.*

Mentor uses the global positioning system (GPS) receiver to determine speed and when users are driving unsafe by exceeding speed limits, and location for determine the vehicle’s location (for example, when an accident occurs 3rd parties may send emergency assistance).

99.

Claim 57 of the ’558 Patent, for example, recites:

> *57. The system of claim 52, wherein the code to determine the MTMA comprises: code to compute a score for each MTMA of the plurality; and code to compare the scores to identify the MTMA.*

Mentor determines a score from each data sample through a measurement of the time domain and frequency domain. Solera uses code that computes motion activity reference data that includes a numerical integral (or range) that is derived from the sum of acceleration within a predefined time period.

100.

Claim 58 of the ’558 Patent, for example, recites:

> *58. The system of claim 52, wherein the reference data is indicative of a relationship to Earth gravity.*

Mentor subtracts earth's gravity influence from the raw accelerometer data so the reference data may accurately represent the motion activity.

101.

Claim 59 of the '558 Patent, for example, recites:

> *59. The system of claim 52, wherein the movement data is in the time domain (TD) and wherein the code to calculate comprises: code to compute a magnitude of the movement data in each of at least two dimensions of space; code to compute one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

Mentor processes raw accelerometer data in the time domain and the code calculates the magnitude of the movement data in at least two dimensions of space; code computes the average magnitude total and/or energy average of the magnitude total to determine at least in part the motion activity.

102.

Claim 60 of the '558 Patent, for example, recites:

> *60. The system of claim 52, wherein the computer program code further comprises: code to transform the magnitudes from the TD to the frequency domain (FD) to produce FD data; code to compute one or more FD statistical metrics from the FD data; and wherein the MTMA determining is based at least in part the FD statistical metrics.*

Mentor processes raw accelerometer data in the time domain and the code calculates the magnitude of the movement data in the frequency domain to the time domain; the code produces statistical metrics from the frequency domain to determine at least in part the mobile activity.

COUNT III

DIRECT INFRINGEMENT OF THE '230 PATENT

103.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

104.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the ’230 Patent, through, among other activities, making, using, and incorporating into Defendant’s Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant’s Mentor applications are provided as smartphone-deployed driver-centric-behavior-based solutions to many industries (delivery, distribution, human health, and others).

105.

Independent Claim 1 of the ’230 Patent, shown in italics, recites:

> *1. A computer system designed to communicate with a remote wireless communication device (WCD), the computer system comprising: one or more memories that store computer program code; and one or more processors that execute the computer program code, the computer program code comprising:*

Mentor uses smartphones (wireless communication devices) equipped with memory, code and processors that execute the code for determining human activities including when driving vehicles, riding in vehicles, when users aggressively drive (hard braking/fast acceleration), and others by monitoring acceleration sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *instructions to receive sensed data from the WCD that derives the sensed data with one or more sensors associated with the WCD; instructions to make a comparison of the sensed data with reference data;*

The Mentor application gets raw accelerometer data that is indicative of the smartphone’s movements; by comparing the raw sensor data to the reference data, human activities such as when a user starts driving a vehicle, when the user accelerates the vehicle, when the user engages the vehicle to stop quickly, when a person is finished driving and when accidents occur may be determined.

> *instructions to communicate a message to the WCD indicating whether or not the sensed data involves an activity relating to at least one of a user need for assistance, an accident, and a crime, based upon the comparison;*

When the Mentor system determines the driver is in an accident and/or the user is driving unsafely it is programmed to communicate a message to the user.

> *instructions to, when the sensed data involves the activity, enable one or more additional sensors associated with the WCD; and*

Mentor obtains additional smartphone sensor data. Defendant's website boasts, "When accidents happen, our AI-driven telematics platform enables our partners to gather information quickly and accurately to proactively respond. Crash detection allows emergency services to respond to the exact location within seconds of a crash." https://www.edriving.com/mentor/.

> *instructions to receive additional sensed data from the WCD that derives the additional sensed data from the one or more additional sensors.*

According to Defendant's website, "With Crash Detector, you know when your customers have been in a crash. This enables you to proactively get them help. It also accelerates the claims process for them and for you. Increase Digital FNOL completion rates with prefilled telematics data from the crash scene, like time, date, location, and more." *Id.*

> Now, Automatic Crash Detection, built into Mentor, protects your employees and contractors 24/7 from such circumstances should a crash occur while driving for work purposes. Sfara's patented, fully smartphone-based technology detects collisions and triggers a voice call to the driver from the Bosch Emergency Center serving over 50 countries and handling more than 1.7 million emergency calls globally each year. In the case of no response from the driver or confirmation of an emergency, event information will be relayed to local emergency services for immediate dispatch of help to the scene. Approved contacts in a driver's Mentor Emergency Profile (e.g., next of kin, employer, etc.) will also be notified. [https://www.edriving.com/emergency-response-services/]

106.

Independent Claim 11 of the '230 Patent, shown in italics, recites:

> *11. A method for implementation in a computer system designed to communicate with a remote wireless communication device (WCD), the method comprising:*

Defendant's Mentor system uses smartphones (wireless communication devices) equipped with memory, code and processors that execute the code for determining human activities including when driving vehicles, riding in vehicles, when users aggressively drive (hard braking/fast acceleration), and others by monitoring acceleration sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *receiving sensed data from the WCD that is derived from one or more sensors associated with the WCD; making a comparison of the sensed data with reference data;*

The Mentor application gets raw accelerometer data that is indicative of the smartphone's movements; by comparing the raw sensor data to the reference data, human activities such as when a user starts driving a vehicle, when the user accelerates the vehicle, when the user engages the vehicle to stop quickly, when a person is finished driving and when accidents occur may be determined.

> *communicating a message to the WCD indicating whether or not the sensed data involves an activity relating to at least one of a user need for assistance, an accident, and a crime, based at least in part upon the comparison;*

The Mentor system determines when the driver is in an accident and/or when the user is driving unsafely; it is programmed to communicate a message to the user at such times.

> *enabling, when the sensed data involves the activity, one or more additional sensors associated with the WCD; and receiving additional sensed data from the WCD that is derived from the one or more additional sensors associated with the WCD.*

Mentor obtains additional smartphone sensor data: "smartphone-based technology detects collisions and triggers a voice call to the driver from the Bosch Emergency Center serving over 50 countries and handling more than 1.7 million emergency calls globally each year. In the case of no

response from the driver or confirmation of an emergency, event information will be relayed to local emergency services for immediate dispatch of help to the scene." *Id.*

Precision Crash Detection

Up to 50 million crash-related injuries occur worldwide each year[1], often leaving drivers stranded or worse, unconscious and unable to call for help when every minute counts. Up to 40 percent of people will be trapped in their vehicle[2].

Now, **Automatic Crash Detection**, built into Mentor, protects your employees and contractors 24/7 from such circumstances should a crash

107.

Independent Claim 21 of the '230 Patent, shown in italics, recites:

> *21. A computer system designed to communicate with a remote wireless communication device (WCD), the computer system comprising:*

Solera's Mentor system uses smartphones (wireless communication devices) equipped with memory, code and processors that execute the code for determining human activities including when driving vehicles, riding in vehicles, when users aggressively drive (hard braking/fast acceleration), and others by monitoring acceleration sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *means for receiving sensed data from the WCD that is derived from one or more sensors associated with the WCD; means for making a comparison the sensed data with reference data;*

The Mentor application gets raw accelerometer data that is indicative of the smartphone's movements; by comparing the raw sensor data to the reference data, human activities such as when

a user starts driving a vehicle, when the user accelerates the vehicle, when the user engages the vehicle to stop quickly, when a person is finished driving and when accidents occur may be determined.

> *means for communicating a message to the WCD indicating whether or not the sensed data involves an activity relating to at least one of a user need for assistance, an accident, and a crime, based at least in part upon the comparison;*

Defendant's system determines when the driver is in an accident and/or when the user is driving unsafely; it is programmed to communicate a message to the user at such times.

> *means for enabling, when the sensed data involves the activity, one or more additional sensors associated with the WCD; and means for receiving additional sensed data from the WCD that is derived from the one or more additional sensors associated with the WCD.*

Mentor obtains additional smartphone sensor data:

> Now, Automatic Crash Detection, built into Mentor, protects your employees and contractors 24/7 from such circumstances should a crash occur while driving for work purposes. Sfara's patented, fully smartphone-based technology detects collisions and triggers a voice call to the driver from the Bosch Emergency Center serving over 50 countries and handling more than 1.7 million emergency calls globally each year. In the case of no response from the driver or confirmation of an emergency, event information will be relayed to local emergency services for immediate dispatch of help to the scene. Approved contacts in a driver's Mentor Emergency Profile (e.g., next of kin, employer, etc.) will also be notified. [https://www.edriving.com/emergency-response-services/]

Precision Crash Detection

Up to 50 million crash-related injuries occur worldwide each year[1], often leaving drivers stranded or worse, unconscious and unable to call for help when every minute counts. Up to 40 percent of people will be trapped in their vehicle[2].

Now, **Automatic Crash Detection**, built into Mentor, protects your employees and contractors 24/7 from such circumstances should a crash

COUNT IV

DIRECT INFRINGEMENT OF THE '951 PATENT

108.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

109.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the '951 Patent, through, among other activities, making, using, and incorporating into Defendant's Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant's Mentor applications are provided as smartphone-deployed driver-centric-behavior-based solutions to many industries (delivery, distribution, human health, and others).

110.

Independent Claim 1 of the '951 Patent, shown in italics, recites:

> *1. A wireless communications device (WCD), comprising: one or more memories that store computer program code; and one or more processors that execute the computer program code, the computer program code comprising:*

Mentor uses wireless communication devices for determining human activities including when driving vehicles, riding in vehicles, when users aggressively drive (hard braking/fast acceleration), and when accidents occur by monitoring acceleration sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *instructions to enter a first mode of operation involving a first investigation process with one or more sensors, the first investigation process capturing first data with the one or more sensors;*

The Mento system enters into a first investigation process by monitoring accelerometer data when the user starts driving and automatically detects when driving starts and stops, and uses the phone's sensors to measure your vehicle's driving dynamics.

> *instructions to determine whether or not the first data is indicative of an activity relating to a user need for assistance, an accident, or a crime; and*

The Mentor program monitors the user driving, and constantly monitor for accidents and when the user may need assistance.

> *instructions to, when the first data may involve the activity, enter into a second mode of operation involving a second investigation process that is different than the first investigation process and that involves the one or more sensors and/or one or more other sensors in order to capture second data that is further indicative of the activity.*

On information and belief, when the Mentor program determines the user is involved in an accident, the system will then send captured surveillance crash information (location, time, driver ID, crash intensity, g-force, and speed) to assist the user and/or assist accident reporting and the claims process.

111.

Claim 3 of the '951 Patent, for example, recites:

> *3. The system of claim 1, wherein the computer program code further comprises: instructions to determine a human body physical activity (HBPA) associated with a WCD user based at least in part upon the first data and/or the second data; and instructions to communicate HBPA identification information to a remote computer system to permit analysis in connection with whether or not the first data corresponds to the activity.*

Mentor is an application on a smartphone that monitors the accelerometer and/or gyroscope to monitor *x*, *y* and *z* axis data in a time domain and/or predefined time length for determining a user activity (such as phone usage while driving, or when the user had an accident). The information is sent to remote servers for additional verification and analysis of the activity.

112.

Claim 4 of the ’951 Patent, for example, recites:

> *4. The system of claim 1, wherein the computer program code further comprises: instructions to communicate the first data to a remote computer system to permit analysis in connection with whether or not the first data involves the activity; and receiving information from the remote computer system, the information indicative of whether or not the first data corresponds to the activity.*

Mentor is an application on a smartphone that monitors the accelerometer and/or gyroscope to monitor *x*, *y* and *z* axis data in a time domain and/or predefined time length for determining a user activity. The information is sent to remote servers and when the user activity is confirmed, the server will combine the unsafe driver habits and send this updated information (scoring) to the user. When accidents are confirmed, a third party monitoring service and/or individual contacts will be notified.

113.

Claim 5 of the ’951 Patent, for example, recites:

> *5. The system of claim 1, wherein the computer program code further comprises instructions to activate or deactivate one or more I/O devices or one or more programs on the WCD when the first data is indicative of the activity.*

Mentor minimizes the GPS usage to reduce the smartphone battery consumption.

114.

Claim 6 of the ’951 Patent, for example, recites:

> *6. The system of claim 1, wherein the computer program code further comprises instructions that initiate an alarm at the WCD when the first data is indicative of the activity.*

Mentor will engage a countdown alarm and additional alarm when an accident is determined by the accelerometer and/or gyroscope sensor data.

115.

Claim 7 of the '951 Patent, for example, recites:

> *7. The system of claim 1, wherein the computer program code further comprises instructions that communicate a request to initiate an alarm to another WCD in close proximity of the WCD.*

On information and belief, Mentor will contact other smartphone users that the user selects and they may be in close proximity.

116.

Claim 8 of the '951 Patent, for example, recites:

> *8. The system of claim 1, wherein the computer program code further comprises: instructions to compare the first data and/or the second data with reference data; and instructions to detect an event in an environment associated with the WCD based upon the comparison.*

Mentor compares accelerometer data in timed sets, and when the user is driving the system enters into a driving monitoring mode where phone usage, hard braking, fast acceleration, cornering and accidents will be detected, based on the comparison on the first and second (and other) data sets.

117.

Claim 9 of the '951 Patent, for example, recites:

> *9. The system of claim 8, wherein the comparison is in the time domain, frequency domain, or both.*

Mentor monitors accelerometer and gyroscope *x*, *y* and *z* axis data by processing the information in the time domain, frequency domain or both.

118.

Independent Claim 10 of the '951 Patent, shown in italics, recites:

> *10. A wireless communications device (WCD), comprising: one or more memories that store computer program code; and one or more processors that execute the computer program code, the computer program code comprising:*

The Solera Mentor application uses smartphones (wireless communication devices) equipped with processors, memory that execute program code, for determining human activities including when driving vehicles, riding in vehicles, when users aggressively drive (hard braking/fast acceleration), and when accidents occur by monitoring acceleration sensor data over time periods from the internal accelerometer sensor and/or gyroscope sensor.

> *instructions to produce data from one or more sensors associated with the WCD; instructions to determine a human body physical activity (HBPA) associated with a WCD user based upon the data;*

The Mentor application when powered up starts getting data from the accelerometer and/or gyroscope sensor(s); it enters into an investigation process to determine if the user is driving a vehicle based on the data.

> *instructions to select a mode of operation from a set of modes, based upon the determined HBPA, the set including different modes of operation involving initiation of different investigation processes that capture different types of data; and*

When the Mentor system determines that a person is driving a vehicle it starts monitoring the user's driving behavior to determine unsafe events such as sharp cornering, fast acceleration, hard braking, when the user is using their smartphone.

> *instructions to communicate the data to a remote computer system.*

Mentor communicates the driver's information to remotely located computers/servers that determine driver scores and rewards.

COUNT V

DIRECT INFRINGEMENT OF THE '914 PATENT

119.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

120.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the ’914 Patent, through, among other activities, making, using, and incorporating into Defendant’s Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant’s Mentor provides smartphone-deployed driver-centric-behavior-based solutions to many industries (delivery, distribution, human health, and others).

121.

Independent Claim 5 of the ’914 Patent, shown in italics, recites:

> *5. A system comprising: at least one computing device; and at least one application executable in the at least one computing device, the application comprising:*

Mentor uses wireless communication devices for determining human activities including driving vehicles, when riding in vehicles, when users drive aggressively/dangerously and make sharp/fast turns, use hard braking, accelerate fast, and when they use smartphones while driving by monitoring the smartphone’s accelerometer x, y, and z axis sensor data over time periods.

Dashboard

Mentor uses native applications running on the operating systems of smartphones that are equipped with an accelerometer and gyroscope sensors for monitoring three streams of data ("the *x*, *y*, and *z* axis") from each device. The Mentor software monitors the accelerometer sensor for linear acceleration and the gyroscope sensor for angular velocity to determine human activities (from sensor data), when users are not in vehicles, when driving vehicles, riding in vehicles, when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, and when they handle and/or use smartphones while driving.

logic that determines a user activity and/or user surroundings;

Mentor uses accelerometer reference data (for determining activities such when users are driving vehicles including types of driving including hard braking and fast acceleration by values, time-series (samples), and/or frequencies. Mentor monitors the accelerometer sensor for linear acceleration and/or the gyroscope sensor for angular velocity for using logic to determine human activities (from sensor data), when users are not in vehicles, driving vehicles, riding in vehicles,

when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, accidents, and when they handle and/or use smartphones while driving.

> *logic that determines a surveillance mode that corresponds to the user activity and/or the user surroundings;*

Mentor uses logic for determining a surveillance mode that activates and corresponds to a user that is driving.

> *logic that facilitates a user-defined response to the user activity and/or the user surroundings; and*

On information and belief, Mentor facilitates a user-defined response when driving is detected, allowing the user to enter a riding mode (not driving) of the surveillance monitoring.

> *logic that communicates surveillance information to at least one remotely located computer device.*

Mentor communicates surveillance information (driver habits, i.e. phone usage, fast acceleration, hard braking, fast cornering) over a time period to remotely located computers that determine a driving and discount score for the user.

122.

Claim 6 of the '914 Patent, for example, recites:

> *6. The system of claim 5, wherein the logic that facilitates the user-defined response further comprises logic that automatically activates the user-defined response to the user activity and/or the user surroundings.*

Mentor monitors the accelerometer and/or gyroscope sensors to automatically determines when a user is in a vehicle and driving.

123.

Claim 7 of the '914 Patent, for example, recites:

> *7. The system of claim 5, wherein the logic that facilitates the user-defined response further comprises logic that assigns a risk level associated with the user activity and/or the user surroundings.*

Mentor uses a surveillance mode that calculates a risk level of having an accident, including a FICO Safe Driving Score. https://www.edriving.com/wp-content/uploads/2019/09/eDriving.Insurance.CIO_.9.10.19.pdf. For example, phone usage while driving causes accidents and is measured by the accelerometer and gyroscope sensors. For example, fast cornering while driving is measured by the accelerometer and gyroscope sensors. Risky driving behaviors are provided to the user and to remotely located servers.

124.

Claim 13 of the ’914 Patent, for example, recites:

> *13. The system of claim 5, further comprising logic that provides the user an instruction according to the surveillance mode.*

Mentor provides the users with tips and other instructions to becoming a better driver.

125.

Independent Claim 15 of the ’914 Patent, shown in italics, recites:

> *15. A method comprising the steps of: determining, by a computing device, a user activity and/or user surroundings;*

Mentor uses applications on smartphones (wireless communication devices) for automatically detecting when driving starts and stops, hen users are driving and/or riding in vehicles, when users are not driving and/or riding in vehicles. The Mentor application uses the phone's sensors to measure a vehicle's driving dynamics.

Claim 15 continues:

> *determining, by the computing device, a surveillance mode that corresponds to the user activity and/or the user surroundings;*

Mentor automatically determines surveillance modes for when people start (or stop) driving, when driving and using smartphones, when they are driving aggressively, when crashes or accidents occur, and others.

> *facilitating, by the computing device, a user-defined response to the user activity and/or the user surroundings; and*

Mentor will prompt and/or remind the user to acknowledge when they are riding in vehicles but not driving, when the system incorrectly logs driving, and when the system determines an accident has occurred. If an accident is detected, the system and starts an onscreen countdown before messaging remotely located servers of the accident.

> *communicating, by the computing device, surveillance information to at least one remotely located computer device.*

Mentor communicates surveillance information (such as driving or riding, using the phone while driving, fast acceleration and hard braking) over a time period to remotely located computers that determine discounts and rewards.

126.

Claim 17 of the ’914 Patent, for example, recites:

> *17. The method of claim 15, wherein the step of facilitating the user-defined response further comprises the step of assigning, by the computing device, a risk level associated with the user activity and/or the user surroundings.*

Mentor determines a risk level when the user is using their phone while driving, and fast cornering and other risky driving habits. Accident detection sends additional information such as impact information, location and other information that helps to access the risk level of being injured.

127.

Claim 20 of the ’914 Patent, for example, recites:

> *20. The method of claim 15, wherein the step of determining the user activity and/or the user surroundings further comprises the step of matching, by the computing device, sensor data to at least one algorithm with at least one user-defined parameter.*

Mentor allows the user to enter a riding mode—not driving. When the user selects driving, Mentor engages algorithms for determining phone usage and when the driver uses sharp cornering.

COUNT VI

DIRECT INFRINGEMENT OF THE ’273 PATENT

128.

Plaintiff incorporates by reference the allegations of Paragraphs 1-15.

129.

Defendant has directly infringed and continues to directly infringe at least one or more claims of the ’273 Patent, through, among other activities, making, using, and incorporating into

Defendant's Mentor applications automatic programs for monitoring human activities while driving. On information and belief, Defendant's Mentor applications provide smartphone-deployed driver-centric-behavior-based solutions.

130.

Independent Claim 1 of the '273 Patent, shown in italics, recites:

> *1. A method, comprising: receiving a time value and three streams of data sample values from an accelerometer of a wireless communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of an acceleration of the WCD along an axis of a three dimensional (3D) coordinate system at a corresponding time value;*

The Mentor system uses native applications running on top of the operating systems of smartphones that are equipped with an accelerometer and gyroscope sensors for monitoring three streams of data ("the *x*, *y*, and *z* axis") from each device. The Mentor software monitors the accelerometer sensor for linear acceleration and the gyroscope sensor for angular velocity to determine human activities (from sensor data), when users are not in vehicles, driving vehicles, riding in vehicles, when users drive aggressively/dangerously by making sharp/fast turns, use hard braking, accelerate fast, and when they handle and/or use smartphones while driving.

> *recognizing a particular set of data sample values as a reference in the 3D coordinate system for defining a relationship between an orientation of the WCD and a two dimensional (2D) coordinate system;*

Mentor calculates accelerometer *x*, *y* and *z* axis data that totals the constant gravity acceleration. The acceleration from gravity may be removed by reducing the amount from each axis or the total amount when combining all three axis. Determining the vertical direction of gravity provides an orientation of the smartphone in a two dimensional measurement system.

> *computing reference data based upon the recognition of the particular set, the reference data defining a relationship between each set of subsequent non-reference data sample values and the particular reference set of data sample values in the 2D coordinate system;*

Mentor computes reference data including a numeric magnitude and frequency over a predetermined time period. Raw accelerometer data that represents the acceleration of the human activity are compared by measuring the magnitude and frequency over the same predetermined time period as the reference data.

> *calculating movement data in the 2D coordinate system of one or more other non-reference data sample values based upon the reference data; and*

Mentor calculates the movement data in a two dimensional magnitude and frequency measurement over time.

> *determining a moving thing motion activity (MTMA) associated with the MT based upon the movement data.*

Mentor determines the motion activity by matching the numeric numbers representing the magnitude and frequency over the same time period with reference data that matches the motion activity—users driving and safe/unsafe styles of driving (hard braking/fast acceleration/quick cornering) based on the data.

131.

Claim 2 of the '273 Patent, for example, recites:

> *2. The method of claim 1, further comprising: prior to recognizing, mathematically combining the data sample values of the particular reference set; and recognizing the particular reference set as the reference when a combined value has a magnitude that is indicative of a relationship to Earth gravity.*

Mentor calculates the accelerometer *x*, *y* and *z* axis data by adding the accelerometer axis data to locate the acceleration provided by gravity; the reference set is a measurement so the magnitude of gravity may be removed so acceleration associated with smartphone movements may be accurately measured.

132.

Claim 3 of the '273 Patent, for example, recites:

> *3. The method of claim 2, further comprising updating the reference data each time the reference set of data samples is recognized.*

Mentor updates the gravity reference data so acceleration from the movement of the smartphone may be accurately measured.

133.

Claim 4 of the '273 Patent, for example, recites:

> *4. The method of claim 1, wherein: each set of data sample values includes a vector defined by three data sample values x,y,z; the reference data is a rotation matrix M; and the movement data comprises a vertical magnitude along the z axis and a horizontal magnitude along the x, y plane, both derived from a rotated vector, the rotated vector equal to the rotation matrix M multiplied by the vector associated with the other non-reference data sample values x,y,z.*

Mentor uses the accelerometer *x*, *y* and *z* axis to determine the direction of gravity. After determining the vertical direction of gravity (z axis) a horizontal magnitude for the *x* and *y* axis is established. Mentor uses the *x* and *y* axis for determining hard braking, fast acceleration and quick cornering from drivers. The rotation matrix is applied to the raw *x*, *y* and *z* axis data from the accelerometer.

134.

Claim 5 of the '273 Patent, for example, recites:

> *5. The method of claim 4, further comprising: transforming the movement data to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part upon the FD statistical metrics.*

Mentor transforms the movement data (from the accelerometer *x*, *y* and *z* axis) to the frequency domain to produce data that determines magnitude averages, amounts, and other statistical metrics used in identifying the motion activity.

135.

Claim 6 of the '273 Patent, for example, recites:

> *6. The method of claim 5, wherein the MTMA is identified from a set of MTMAs and further comprising: computing a score for each MTMA of the set; and comparing the scores to identify the MTMA.*

Mentor uses a list of reference motion activities, each having a unique numeric score to be used for matching.

136.

Claim 7 of the '273 Patent, for example, recites:

> *7. The method of claim 1, wherein the MTMA is identified from a set of MTMAs and further comprising: computing a score for each MTMA of the set; and comparing the scores to identify the MTMA.*

Mentor uses a list of reference motion activities, each having a unique numeric score that can be matched with accelerometer data coming from motion activities.

137.

Claim 8 of the '273 Patent, for example, recites:

> *8. The method of claim 1, wherein the reference data is in the form of a rotation matrix that normalizes the sets of non-reference data sample values with respect to Earth gravity.*

Mentor uses reference data that includes or subtracts the earth's gravity acceleration of the *x*, *y* and *z* axis or a combined total.

138.

Claim 9 of the '273 Patent, for example, recites:

> *9. The method of claim 1, wherein the movement data is in the time domain (TD) and wherein the computing comprises: computing a magnitude of the movement data in each of the two dimensions of space; computing one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

Mentor takes the accelerometer and/or gyroscope movement data in the time domain and computes a magnitude of the movement data within a two dimensional vertical measurement for identifying the motion activity.

139.

Claim 10 of the '273 Patent, for example, recites:

> *10. The method of claim 9, further comprising: transforming the magnitudes from the TD to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA determining is based at least in part the FD statistical metrics.*

Mentor calculates the magnitudes in the frequency domain so the motion activity is at least in part identified by the statistical metrics from the frequency domain.

140.

Claim 11 of the '273 Patent, for example, recites:

> *11. The method of claim 1, wherein one or more of the steps of the method is implemented in the WCD.*

Mentor applications implement one or more steps of the method in the smartphone.

141.

Independent Claim 12 of the '273 Patent, shown in italics, recites:

> *12. A method, comprising: receiving first and second data from an accelerometer associated with a wireless communication device (WCD) transported by a mobile thing (MT), the first and second data indicative of acceleration of the WCD;*

The Mentor system uses wireless communication devices for determining human activities including driving vehicles, when riding in vehicles, when users drive aggressively/dangerously and make sharp/fast turns, use hard braking, accelerate fast, and when they use smartphones while driving by monitoring accelerometer sensor data over time periods from the internal smartphone accelerometer sensor.

> *determining reference data that defines a reference framework in two dimensions (2D) of space from the first data;*

Mentor uses reference data that determines peaks (and up and down) (2D) inertia motions by the accelerometer. Mentor calculates reference data by monitoring the accelerometer *x*, *y* and *z* axis data to identify gravity data within the *x*, *y* and *z* axis. The gravity data is also used to determine the vertical position (z axis) of the data so that measurements associated with vertical and horizontal movements (forward acceleration, braking, sharp cornering, and others) may be accurately measured.

> *normalizing the second data with the reference data so that the second data can be analyzed in the 2D space; and*

In response to receiving live data, the data is sampled by time, ranges, and/or averages, which is using a 2D analysis. Second data is normalized by removing the gravity acceleration. The second data is normalized by determining a rotational matrix that is based on the direction of gravity.

> *identifying a mobile thing motion activity (MTMA) associated with the MT based upon the normalized second data.*

Mentor identifies motion activity, users driving and safe/unsafe styles of driving (hard braking/fast acceleration) based on the normalized data. Mentor identifies motion activity, users driving and safe/unsafe styles of driving (hard braking/fast acceleration/quick cornering/phone usage) based on normalizing the data to remove gravity's acceleration so movement acceleration may be accurately measured. The second data measurements also determine the acceleration in a vertical and horizontal plane and/or direction so that forward acceleration, braking, sharp cornering, and others events may be determined.

142.

Claim 13 of the '273 Patent, for example, recites:

> *13. The method of claim 12, wherein the second data comprises a plurality of periodic samples.*

Mentor verifies motion activities by determining when second data samples match the previous data sample to formulate matching pattern. A motion activity gets confirmed when two or more data samples match a motion activity.

143.

Claim 14 of the '273 Patent, for example, recites:

> *14. The method of claim 12, wherein the reference data is indicative of a relationship to Earth gravity.*

Mentor determines Earth's gravity to determine the vertical (z axis) position. The vertical position also allows the *x* and *y* axis to be representative of the horizontal data (e.g. accelerating, braking, cornering).

144.

Claim 15 of the '273 Patent, for example, recites:

> *15. The method of claim 12, wherein the reference data is determined in the form of vector information indicative of a relation to Earth gravity by comparing the first data to a predefined numerical range.*

Mentor uses the accelerometer data to determine a vertical position (and also horizontal position) by monitoring the acceleration of Earth's gravity, then a numerical range for vertical data and comparing the first data to a predetermined numerical range for determining driver acceleration, breaking, turns/cornering, and when accidents occur.

145.

Claim 16 of the '273 Patent, for example, recites:

> *16. The method of claim 15, wherein the accelerometer produces first, second, and third sample data along each of 3 axes in a three dimensional (3D) coordinate system and wherein the first data pertains to a value that equals one within a predefined range, the value computed by combining the first, second, and third sample data.*

Mentor verifies motion activities by determining when second data samples match the previous data sample to formulate matching pattern. A motion activity gets confirmed when two or more data samples match a motion activity.

146.

Claim 18 of the '273 Patent, for example, recites:

> *18. The method of claim 17, further comprising: transforming the magnitudes from the TD to the frequency domain (FD) to produce FD data; computing one or more FD statistical metrics from the FD data; and wherein the MTMA identifying is based at least in part the FD statistical metrics.*

Mentor transforms the movement data (from the accelerometer *x*, *y* and *z* axis) to the frequency domain to produce data that determines magnitude averages, amounts, and other statistical metrics used in identifying the motion activity.

147.

Claim 19 of the ’273 Patent, for example, recites:

> *19. The method of claim 18, wherein the MTMA is identified from a known plurality of MTMAs and further comprising: computing a score for each MTMA of the known plurality; and comparing the scores to identify the MTMA.*

Mentor determines when a user is riding or driving in different types of vehicles by computing an average range and score that identifies which type vehicle the user is riding or driving. Mentor determines when a user is driving and accelerates too fast and/or brakes too hard or aggressively corners by assigning a number (score) that identifies motion activity types (for example, acceptable or unsafe).

148.

Claim 20 of the ’273 Patent, for example, recites:

> *20. The method of claim 12, wherein one or more of the steps of the method is implemented in the WCD.*

Mentor applications implement one or more steps of the method in the smartphone.

149.

Claim 21 of the ’273 Patent, for example, recites:

> *21. The method of claim 12, further comprising: determining an MTMA based action to be initiated based upon the identified MTMA; and initiating an MTMA based action.*

On information and belief, when the Mentor program determines the user is involved in an accident (MTMA), the system will then send captured surveillance crash information (location, time, driver

ID, crash intensity, g-force, and speed) to assist the user and/or assist accident reporting and the claims process (action associated with the MTMA).

150.

Independent Claim 22 of the ’273 Patent, shown in italics, recites:

> *22. A method, comprising: receiving a time value and three streams of data sample values from an accelerometer of a wireless communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of an acceleration of the WCD along an axis of a three dimensional (3D) coordinate system at a corresponding time value;*

Mentor uses wireless communication devices for determining human activities including driving vehicles, when riding in vehicles, when users drive aggressively/dangerously and make sharp/fast turns, use hard braking, accelerate fast, and when they use smartphones while driving by monitoring the smartphone’s accelerometer *x*, *y*, and *z* axis sensor data over time periods.

Claim 22 continues:

> *computing reference data, the reference data defining a relationship between data sample values and a reference framework to enable comparison of 3D sets of data sample values;*

Mentor uses reference data that when matched with live accelerometer data will determine driving vehicles, hard braking, fast acceleration and others, by comparison of 3D sets of sample values.

> *calculating movement data for each set based upon the reference data; and*

In response to receiving live data, the data is sampled by time, peaks, ranges, and/or averages.

> *determining a moving thing motion activity (MTMA) associated with the MT based upon the movement data.*

By comparing the reference data with live accelerometer data that is normalized (by determining peaks, frequencies, timing, et cetera), the motion activity is determined, logged, and provided for driver scores and rewards.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for relief that the Court enter judgment in their favor and against the Defendant, granting the following relief:

That the Court enter judgment that one or more claims of the ’846 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That the Court enter judgment that one or more claims of the ’558 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That the Court enter judgment that one or more claims of the ’230 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That the Court enter judgment that one or more claims of the’951 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That the Court enter judgment that one or more claims of the ’914 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That the Court enter judgment that one or more claims of the ’273 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant;

That Defendant be ordered to pay damages adequate to compensate Plaintiff for its acts of infringement, pursuant to 35 U.S.C. § 284;

That Plaintiff be awarded increased damages under 35 U.S.C. § 284 due to Defendant’s willful infringement of the ’846, ’558,’230, ’951, ’914, and ’273 Patents; That the Court find that this case is exceptional and award Plaintiff reasonable attorneys’ fees pursuant to 35 U.S.C. § 285;

That Defendant, its officers, agents, employees, and those acting in privity with it, be preliminarily enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant, its officers, agents, employees, and those acting in privity with it, be permanently enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant be ordered to pay prejudgment and post-judgment interest;

That Defendant be ordered to pay all costs associated with this action; and

That Plaintiff be granted such other and additional relief as the Court deems just, equitable, and proper.

DEMAND FOR JURY TRIAL

Pursuant to Fed. R. Civ. P. 38(b), Plaintiffs demands a jury trial on all issues justiciable by a jury.

Respectfully Submitted,

Dated: March 15, 2023

/s/ Brett Thomas Cooke

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